

Historic, Archive Document

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Gleanings

in

Bee Culture



THE FAREWELL SONG OF THE BEE

Farewell, said the bee to the flower.
As she hung in its golden heart;
Full many a happy hour
We have spent, but now must part.

For the days are growing colder,
And the nights come earlier now;
And the year is growing older.
Soon snow will whiten his brow.

It breaks my heart to leave you,
To know your beauty will fade;
That winter's cold grave will receive you,
So lovely, so richly arrayed.

But there is one thought that is cheering,
That will bring you some comfort, my dear:
In the seed-children you are rearing,
You'll blossom again next year.

Then listen once more to my humming.
Alas, my love, 'tis the last;
I shiver—a frost is coming,
And summer—sweet summer is past.

LAURA M. GREGG.

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Season of 1922



It will pay you to think of 1923 and get in your order for supplies early. From now on to the spring months we can give you prompt service.

Do not wait till you need the goods, but anticipate your needs so as to be prepared when next season arrives.



A. I. Root Co. of Syracuse, N. Y.

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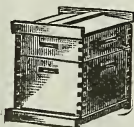
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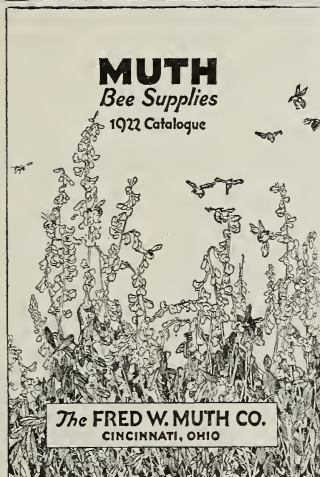
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(Manufacturers Weed Process "SUPERIOR FOUNDATION" and Dovetailed Beehives.)



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Cincinnati, Ohio.

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60-lb. square cans with 1¾-inch screw cap in cases of 2 cans.

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The best market prices for your beeswax.

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REEDSVILLE, WISCONSIN

HONEY MARKETS

U. S. GOVERNMENT MARKET REPORTS.

Information from Producing Areas (First Half of September).

CALIFORNIA POINTS.—Honey flow in southern California curtailed after orange flow by drouth. Crop alfalfa honey light due to damage to crop in northern section by adverse weather conditions and to reduction of acreage in southern California. Demand and movement moderate, market steady. Carloads f. o. b. usual terms, per lb., extracted: White orange mostly 9½c, white sage 8-8½c, light amber sage 6½-7c, light amber alfalfa 6¼-6½c. Comb: Buyers reported offering \$2.70 per case for carlots f. o. b. Inyo County points, but no large sales reported.

INTERMOUNTAIN REGION.—Season practically over, although some beekeepers are removing supers to permit bees to fill up brood-chambers with any remaining honey which may be secured. Due to long summer drouth many sections secured little honey after July. Grasshoppers have been generally harmful. Utah beekeepers especially complain of enormous quantities of a ground bee which has gathered most available nectar. Bees in Arizona now said to be making honey fast from cotton. Crop for the section as a whole far below normal. Many reports of a 50 to 60% crop, or less, received. Demand reported very slow and lighter than last year. Color of honey generally very good. A few carlot sales of white clover and alfalfa extracted reported at 7¾c, 8¼c and 8½c per lb., with less-than-carlot sales up to 10c per lb. Beekeepers have sold to local dealers as low as 6½-7c per lb. Small lot sales No. 1 comb reported around \$3.75-4.50 per case, few reported lower. Beeswax sales reported at 20c per lb. cash, 23-25c in trade.

PACIFIC NORTHWEST.—Extracting is well along. Flow from fireweed has been exceptionally good. Less loss than usual from spray poisoning and weevils in some sections. Bees going into winter in excellent shape. Large lot sales of white honey in 60-lb. cans have recently been made at 9-10c per lb., and in single-can lots at 11c. Few sales fancy and No. 1 white comb reported at \$4.00-4.50 per 24-section case.

TEXAS POINTS.—Little change in record-breaking drouthy conditions except where local showers have given partial relief. Fair to normal surplus promised for the cotton area, but in mesquite and chaparral country hardly one-third crop secured, and many beekeepers have scarcely enough honey to winter on. Demand poor, even considering the small crop. White extracted in 60-lb. cans quoted at 7½-8½c per lb., with white chunk, in 6/10s, listed at 12½-13½c per lb.

EAST CENTRAL AND NORTH CENTRAL STATES.—Crop very spotted. Recent showers have improved condition of nectar-bearing plants in some sections, and a good fall flow from goldenrod and asters, with light smartweed flow, is expected in low areas and along river bottoms. The hot, dry weather in many sections has injured clover prospects for 1923. Demand has been light, due partly to abundance of fruit and to strikes. White extracted, including clover, raspberry and basswood, selling in carlots at 10c per lb., and in less-than-carlot quantities at 10½-12c per lb., with single 60-lb. cans up to 15c. White comb, in 24-section cases, ranges \$4.00-4.80 per case.

PLAINS AREA.—In spite of drouth, reports indicate a larger than average yield in all states. Late rains make a late fall flow but prospects are for light yield. Recent less-than-carlot sales of white extracted in 60-lb. cans reported at 10-12c per lb., with few sales reported low as 9c per lb., and one carlot sale of water white clover at 9½c per lb.

NORTHEASTERN STATES.—Recent drouth has curtailed crop in eastern New York and Pennsylvania, but buckwheat flow reported, fairly large in western portion of area. More rain needed if fall flow from aster and goldenrod is to be important. Comb crop especially light. Few sales white clover in 60-lb. cans at 10-12½c per lb., with buckwheat around 6½-8c per lb. White comb ranges \$4.25-5.25 per 24-section case.

WEST INDIES: PORTO RICO.—Heavy rains are damaging to blossoms in the hill districts. Crop yield little better than last year, but still poor. Amber in 50-gal. bbls. listed at 3½c per lb.

CUBA.—Heavy shipments reported to Holland at 60c per gal., including cost and freight. Local beekeepers receiving 4¼c per lb. for extracted and 21c per lb. for beeswax.

SOUTHEASTERN STATES.—Fall flow now on and promises well from velvet beans, "Mexican clover," heartsease and bitterweed. In the overflow area of Louisiana, unusually large acreages were planted to cowpeas, which are now furnishing nectar. Record-breaking frequency of summer rains in some sections. White extracted in 60-lb. cans and 34-gal. bbls. generally selling at 10c per lb., some low as 9c, light amber 8c, amber 6c. White heavy comb ranges \$4.50-5.00 per 24-section case, with No. 1 light \$4.00. Few sales chunk honey reported at 12½c per lb. Beeswax ranges 22-25c per lb. for yellow and 18-20c for dark.

Telegraphic Reports from Important Markets.

BOSTON.—Comb: Very little demand. Sales to retailers, New York, very few sales, new crop 24-section cases white clover \$6.00-6.50, mostly \$6.00. carton stock \$6.50-7.00. Extracted: Market quiet but steady. Porto Rico honey is slightly higher. Sales to confectioners and bottlers. Porto Rico amber 88-94c per gal. California, white orange and white sage 14-16c, light amber sage 12-14c per lb.

CHICAGO.—Demand and movement moderate, market steady. Slight improvement noted in demand, particularly in extracted. Sales to retailers, comb: 24-section cases Colorado, Iowa and Wisconsin, clover and mixed clover and alfalfa No. 1, heavy \$4.00-4.25. No. 1 light weight \$3.00-3.50; No. 2 heavy \$3.00-3.50. Extracted: Sales to bottlers, bakers and confectionery manufacturers, per lb., Colorado and Utah, alfalfa and mixed alfalfa and clovers, white 9½-10½c, light amber 8-8½c. California, white mixed mountain flowers, 9½-10c. Wisconsin and Michigan white clover 10-10½c. few sales 11c. Beeswax: Receipts moderate. Market steady. Sales to wholesale druggists and laundry supply houses, California and Colorado, light 30-32c, dark 27-30c. South America, principally Brazil, light 27-30c, dark 20-23c.

KANSAS CITY.—Supplies moderate. Demand and movement moderate, market dull on comb, steady on extracted. Sales to jobbers: Extracted, Colorado, white alfalfa, 12c per lb. Comb: 24-sections Colorado alfalfa, light weight No. 1 new stock \$4.25-4.75. Missouri, 24-section cases heavy white clover No. 1 new crop \$5.00-5.50.

MINNEAPOLIS.—Demand light, movement improving, market unsettled, wide range in prices. Sales to retailers. Extracted: Per lb., California, white orange and Colorado white alfalfa and sweet clover, movement light 11-12½c per lb. New crop Hawaii, white, movement moderate, 10c per lb. Minnesota, white clover and Wisconsin basswood 12c. Comb: Colorado, 24-section cases No. 1 white \$4.50. Minnesota, demand and movement improving; 24-section cases No. 1 white \$5.25-5.50, few \$6.00.

NEW YORK.—Domestic receipts limited, foreign receipts moderate. Supply limited. Demand and movement limited, market rather dull. Extracted: Spot sales to jobbers, wholesalers, confectioners, bakers and bottlers, domestic, per lb. California, light amber alfalfa 7-8c, white sage 9½-10½, white orange, mostly 11-11½, few 12c. Intermountain section, white sweet clover 9½-10c, South American and West Indies refined 65-75c per gal. Beeswax: Foreign receipts moderate. Supplies liberal. Demand limited, movement light, market dull. Spot sales to wholesalers, manufacturers and drug trade, Chili, light 28-30c; Brazil, light 26-27c; Cuba, light 24-27c, few high as 28c; dark 19-20c; West Indies, dark 18-20c; Africa, dark 20-21c.

PHILADELPHIA.—Supplies sufficient to supply trade, but demand generally good with market stronger. Extracted: Sales to bakers and manufacturers, Mexico, light amber various flavors, 81c per gal. Porto Rico, amber, various flavors, 83c per gal. Beeswax: Practically no arrivals since last report. Demand and movement moderate, market steady. Sales to manufacturers, per lb., Chili, light 30-32c; Brazil, light 28-30c; Africa, dark 24-25c.

ST. LOUIS.—No carlot receipts reported since last report. Demand and movement very slow, market dull. Comb: Sales to wholesalers and jobbers, 24-section cases Colorado No. 1 white clover \$6.00. Extracted: Sales to wholesalers and jobbers, California, light amber, 8c per lb.; Southern, light amber, various flavors, 6-7c per lb.

Beeswax: No receipts reported since last report. No change in market. Demand and movement very light. Ungraded average country run wax nominally 25c per lb. to jobbers.
H. C. TAYLOR,
Chief of Bureau of Markets.
(Continued on page 680.)

The Opinions of Honey Producers Themselves as Reported to Gleanings in Bee Culture.

Early in September we sent to actual honey producers the following questions:

1. What is the average yield per colony, corrected to date, this season in your locality? Give answer in pounds. (a) Extracted honey? (b) Comb honey?
2. What is the condition of the colonies compared with normal as to (a) Number and age of bees? (b) Stores for winter? Give answer in per cent.
3. What is the condition of the honey plants for next season as compared with normal? Give answer in per cent.

4. What prices are producers being offered for honey at their stations in large lots (carload or entire crop)? (a) Extracted honey, per pound? (b) Comb honey, fancy and No. 1 per case?
5. What are prices to grocers in small lots? (a) Extracted honey in 5-lb. pails or other retail packages? (b) Comb honey, fancy or No. 1 per case?
6. How is honey moving on the market in your locality? Give answer in one word, as slow, fair or rapid.

The answers as returned by our honey and bee reporters are as follows:

State.	Reported by:	Yield.		Colony Cond.		Plant Cond.	Price to Prod.		Price to Grocer.		Move-ment.
		Ext.	Comb.	Bees.	Stores.		Ext.	Comb.	Ext.	Comb.	
Ala.	J. C. Dickman....	25..	0....	100..	100....	100....	..	..	\$0.75..	..	Fair
Cal.	L. L. Andrew.....	60..	..	100..	100....	100....	\$.08..	..	.85..	..	Fair
Cal.	M. C. Richter.....	25..	..	80..	80....	..	.06..	..	1.50..	..	Fair
Cal.	M. A. Saylor.....	30..	24....	100..	100....	100....	..	..	.75..	\$5.00..	Fair
Cal.	M. H. Mendleson..	50..	..	100..	100....	100....	..	..	..	5.50....	Slow
Colo.	J. A. Green.....	60..	30....	100..	75....	..	..	3.75....	.60..	4.25....	..
Colo.	B. W. Hopper.....	50..	50....	100..	100....	75....	..	..	.50..	4.50....	Slow
Conn.	A. Latham	75..	60....	125..	95....	125....	..	..	..	..	Fair
Conn.	A. W. Yates.....	10..	10....	75..	25....	125....	.12..	6.00....	1.30..	7.50....	Slow
Fla.	W. Lamkin	75..	..	100..	100....	100....	.07..	..	.65..	..	Slow
Fla.	C. C. Cook.....	100..	..	125..	125....	100....	.08..	..	.75..	..	Rapid
Fla.	H. Hewitt	60..	..	100..	100....	100....	.08..	..	.60..	..	Fair
Ga.	J. J. Wilder.....	60..	40....	100..	..	100....	.10..	4.25....	.75..	4.75....	Fair
Ill.	C. F. Bender.....	..	46....	90..	100....	70....	..	..	..	5.50....	Slow
Ill.	A. L. Kildow.....	110..	90....	100..	100....	25....	..	..	1.10..	4.50....	Slow
Ind.	E. S. Miller.....	75..	50....	100..	90....	..	..	..	.80..	4.80....	Slow
Ind.	J. Smith	30..	20....	100..	100....	75....	..	..	1.25..	..	..
Ind.	T. C. Johnson....	75..	60....	100..	100....	100....	..	..	.90..	5.00....	Slow
Ia.	E. G. Brown.....	100..	..	..	..	100....	.08..	..	.75..	4.75....	Fair
Ia.	F. Coverdale	100..	50....	125..	100....	100....	..	5.00....	.75..	..	..
Ia.	W. S. Pangburn..	120..	..	..	..	90....	..	..	.80..	5.50....	Slow
Kan.	C. D. Mize.....	60..	50....	80..	60....	..	..	..	.75..	5.50....	Slow
La.	E. C. Davis.....	80..	50....	100..	100....	100....	..	..	.75..	5.25....	Fair
Me.	O. B. Griffin.....	..	12....	95..	85....	95....	..	..	1.25..	7.00....	..
Md.	S. G. Crocker, Jr.	30..	25....	80..	..	90....	..	..	1.00..	5.50....	Slow
Mass.	O. M. Smith.....	25..	0....	100..	50....	100....	..	..	1.00..	..	Slow
Mich.	I. D. Bartlett....	75..	..	100..	90....	90....	.10..	..	.75..	..	Slow
Mich.	L. S. Griggs.....	80..	40....	100..	30....	100....	..	..	.80..	6.00....	Slow
Mich.	B. F. Kindig.....	50..	..	105..	..	80....	.11..	..	.75..	5.25....	..
Mich.	F. Markham	80..	50....	100..	75....	50....	.11..	5.00....	.80..	5.50....	Fair
Mich.	E. D. Townsend..	50..	0....	100..	..	85....	..	..	..	..	Slow
Mo.	J. H. Fisbeck....	95..	..	100..	50....	..	..	..	..	..	Slow
Mo.	J. W. Romberger..	90..	80....	100..	80....	60....	.15..	5.25....	.95..	5.50....	Slow
Nev.	E. G. Norton.....	60..	..	..	..	..	.06..	..	.50..	..	Slow
R. I.	A. C. Miller.....	50..	0....	100..	85....	100....	..	..	1.50..	..	Slow
N. Y.	G. B. Howe.....	40..	10....	100..	..	50....	.12..	6.60....	1.00..	..	Fair
N. Y.	F. W. Lesser.....	40..	20....	100..	100....	125....	..	..	.75..	4.80....	Slow
N. Y.	R. B. Willson....	75..	60....	100..	100....	110....	.11..	4.75....	.85..	5.25....	Slow
N. C.	W. J. Martin.....	75..	60....	90..	..	100....	.10..	5.25....	1.50..	6.00....	Fair
N. C.	C. S. Bumgarner..	..	..	100..	100....	90....	..	..	.70..	..	Fair
N. C.	C. L. Sams.....	65..	50....	100..	100....	100....	.10..	5.00....	1.00..	6.50....	Fair
Ohio.	E. G. Baldwin....	90..	50....	100..	100....	100....	..	..	1.25..	5.50....	Fair
Ohio.	R. D. Hiatt.....	70..	30....	95..	65....	100....	..	..	1.00..	5.50....	Slow
Ohio.	F. Leininger	80..	50....	100..	75....	90....	.11..	4.80....	1.00..	..	..
Ohio.	J. F. Moore.....	70..	50....	90..	70....	90....	..	..	.80..	4.80....	Slow
Okla.	J. Heueisen	40..	..	90..	100....	100....	..	..	.75..	..	Fair
Okla.	C. F. Stiles.....	30..	10....	80..	85....	50....	..	..	.80..	6.00....	Slow
Ore.	E. J. Ladd.....	100..	..	100..	90....	100....	..	..	..	..	Slow
Ore.	H. A. Scullen....	60..	..	..	..	100....	..	..	.90..	..	Fair
Pa.	H. Beaver	80..	40....	100..	80....	50....	.09..	3.00....	.65..	3.25....	Fair
Pa.	D. C. Gilham....	40..	32....	100..	..	..	..	..	1.05..	7.20....	Slow
Pa.	G. H. Rea.....	30..	20....	100..	75....	100....	..	..	..	..	..
S. C.	A. S. Conradi....	..	50....	100..	..	100....	..	..	..	..	Rapid
Tenn.	J. M. Buchanan..	30..	15....	100..	75....	90....	..	..	1.00..	..	Slow
Tex.	T. A. Bowden....	15..	..	100..	100....	..	..	..	.75..	..	Fair
Tex.	J. N. Mayes.....	76..	30....	60..	75....	60....	.08..	7.20....	.50..	..	Slow
Vt.	J. E. Crane.....	75..	60....	100..	100....	110....	..	..	1.25..	6.50....	Slow
Wash.	G. W. B. Saxton..	95..	..	100..	100....	100....	.10..	..	.60..	..	Slow
Wash.	W. L. Cox.....	130..	..	90..	95....	100....	..	..	.90..	5.50....	Fair
Wash.	G. W. York.....	75..	40....	90..	80....	90....	.07..	4.00....	.65..	..	Slow
W. Va.	T. K. Massie.....	10..	30....	100..	80....	100....	..	..	1.00..	6.00....	Fair
Va.	T. C. Asher.....	15..	12....	90..	60....	100....	..	6.00....	1.10..	6.00....	Slow
Wis.	N. E. France.....	75..	50....	..	..	70....	..	..	.65..	5.75....	Fair
Wis.	E. Hassinger, Jr.	65..	..	100..	100....	100....	.12..	..	.85..	..	Fair
Wis.	H. F. Wilson....	75..	50....	100..	75....	100....	.12..	5.50....	.90..	7.00....	Fair

For Real Success You Should Buy Woodman's Inner Overcoat Hives

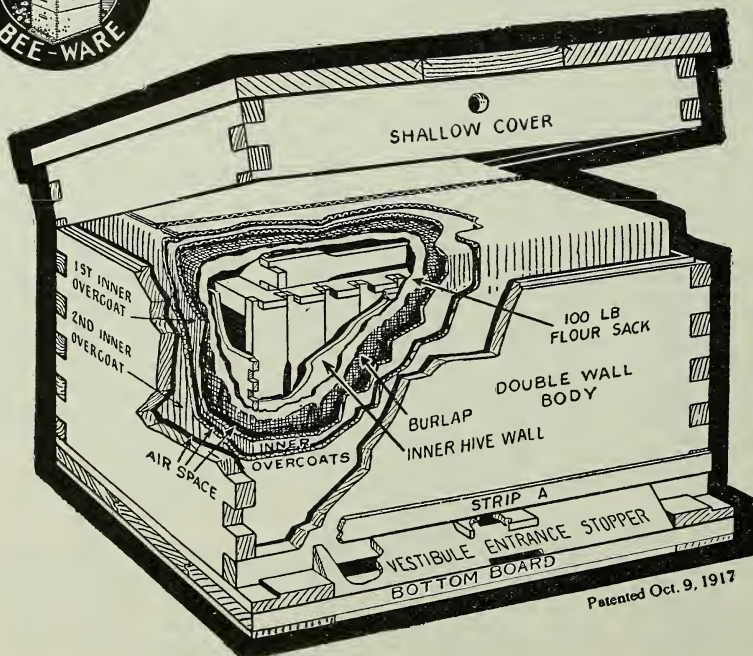
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The Diamond Match Co., who manufacture our supplies, are the largest manufacturers in the world who make bee supplies. They own their own timber lands, mills and factories. We pass on the full advantage of the resulting low production cost to the Beekeeper.

One-Story Complete Dovetailed Hive

With metal telescope cover, inner cover, reversible bottom, Hoffman frames, nails, rabbets.

Standard Size.

Crate of five, K. D., 8-frame.....\$12.65
Crate of five, K. D., 10-frame..... 13.25

Jumbo Size.

Crate of five, K. D., 10-frame..... 14.25

Hive-Bodies

With Hoffman frames, nails, rabbets.

Standard size, crate of 5, K. D., 8-fr.....\$5.20
Standard size, crate of 5, K. D., 10-fr..... 5.85
Jumbo size, crate of 5, K. D., 10-fr..... 6.85

Hoffman Frames

Standard size100, \$5.20; 500, \$25.00
Shallow100, 4.30; 500, 21.00
Jumbo100, 5.80; 500, 28.00

Diamond Brand Foundation

SPECIAL PRICES!

SPECIAL PRICES!

Medium5 lbs., 65c lb.; 50 lbs., 60c lb.
Thin Super.....5 lbs., 70c lb.; 50 lbs., 65c lb.

Comb Honey Supers

For 4x5x1 3/4 sections including section-holders, fence-separators, springs, tins and nails.

Crate of five, K. D., 8-frame.....\$5.60
Crate of five, K. D., 10-frame..... 6.00

HOFFMAN & HAUCK, INC.
WOODHAVEN, NEW YORK

We Want Beeswax

The tremendous demand for **Dadant's Foundation** requires that we have a large stock of beeswax on hand and in transit at all times.

We are therefore situated so that we can pay the highest prices, both in cash and in exchange for bee supplies.

Write us stating quantity and quality of beeswax you have to offer and we will give you our very best prices either f. o. b. Hamilton or your shipping point together with shipping tags and instructions.

When ordering your stock of bee supplies for your season's use, be sure to stipulate

DADANT'S FOUNDATION

Every inch, every pound, every ton, equal to any sample we ever sent out. You cannot afford not to use DADANT'S FOUNDATION.

We render combs into beeswax.

We work beeswax into DADANT'S FOUNDATION.

We buy beeswax for highest cash and trade prices.

We sell a full line of best bee supplies.

PRICES AND CATALOG FOR THE ASKING.

Dadant & Sons, Hamilton, Illinois.

EDITORIAL

WE had hoped to be able to publish in this issue a further report on the experiments



To Prevent Crystallization of Sugar Syrup.

conducted by the Bureau of Chemistry on making sugar syrup that will not crystallize,

by controlling the degree of inversion, in order that it could be tried out this season. A recent letter from H. S. Paine, chemist in charge of the Carbohydrate Laboratory, Bureau of Chemistry, explains that their experiments have been delayed on account of pressure of other work; and our own experiments here at Medina are not yet far enough along to draw conclusions as to the degree of inversion best suited for winter feeding.

Some beekeepers report that they have no trouble from sugar syrup crystallizing in the combs when fed for winter. They simply heat the water to the boiling point and then pour in twice its volume of sugar, stirring, as the sugar is poured in, to prevent it from piling up on the bottom of the vessel. When the sugar crystals are all dissolved the process of making the syrup is complete without further application of heat and without the addition of acid. Others using the same formula report that the syrup begins to crystallize often before the bees can take it from the feeders.

Those who are troubled with crystallization can remedy the trouble by adding a level teaspoonful of tartaric acid for about every 15 pounds of sugar and boiling the syrup for 10 or 15 minutes after adding the acid. This should modify the syrup sufficiently to prevent early crystallization.



HOUSE BILL 11396, to regulate the importation of honeybees into the United States,



The Isle of Wight Disease Bill.

was passed by the Senate on August 23, 1922, and no doubt will

have been signed by the President by the time this is in print if not before. This bill had previously been passed by the House of Representatives, as was noted in our July issue. The House bill was passed by the Senate without amendment; but the original bill as published on page 367, June issue, was amended by the House committee to read as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in order to prevent the introduction and spread of diseases dangerous to the adult honey bee, the importation into the United States of the honeybee (*Apis mellifica*) in its adult stage is hereby prohibited, and all adult honeybees offered for import into the United States shall be destroyed if not immediately exported: Provided, That such adult honeybees may be imported into the United States for experimental or scientific purposes by the United States Department of Agriculture: And provided further, That

such adult honeybees may be imported into the United States from countries in which the Secretary of Agriculture shall determine that no diseases dangerous to adult honeybees exist, under rules and regulations prescribed by the Secretary of Agriculture.

Sec. 2. That any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor and shall, upon conviction thereof, be punished by a fine not exceeding \$500 or by imprisonment not exceeding one year, or both such fine and imprisonment, in the discretion of the court.

The Secretary of Agriculture will no doubt later make arrangements, according to the provisions in this bill, for the importation of queens from certain countries in which he has determined that the Isle of Wight disease does not exist.



While the movement of honey on the market has been distressingly slow thus far this season, there are now



Honey Market Conditions.

indications of an improvement. With improved industrial

conditions and the fruit and vegetable season drawing to a close, honey should now begin to move freely again. Beekeepers who supply their local markets should see that their markets are kept supplied and should not reduce their selling effort as their supply of honey diminishes, but should purchase honey from others to keep their customers well supplied at all times. Beekeepers who have a talent for selling make the best possible salesmen for honey.



CONFLICTING reports as to the wholesomeness of fall-gathered honey as a winter



Fall Honey for Winter Stores.

food for bees in the North is explained in part by the character of the

honey flow when the honey was stored. It is well known that, during a rapid honey flow, honey from the same plant is lighter in color than during a slow honey flow. This is true even in the case of white honey, such as that from white clover, sweet clover and alfalfa. While most fall flowers yield amber or dark honey, it is surprising how much lighter fall honey is when the honey flow is rapid.

As a rule, lighter-colored honey is better for winter than darker-colored honey from the same source, presumably because it contains less indigestible matter.

Another factor that intensifies this difference is that during a slow honey flow there is a greater possibility of the honey being from mixed sources, which often results in inferior winter stores.

Of course where the bees can have a cleansing flight every week or two during

the winter, the quality of the winter stores makes but little if any difference in the way the bees winter; but, in the extreme northern portion of the United States and in Canada, successful wintering hinges largely upon having perfect winter stores. For this reason many northern beekeepers feed each colony at least 15 pounds of sugar syrup in October, regardless of how much honey is already in the hive.



AS our readers already know, the statistics on bees and honey production, gathered by



the United States Census, are incomplete, since the

farm schedule asked each farmer for the number of bees on his farm, and the special town schedule did not include questions on bees and honey. Many of the out-apiaries kept on small rented tracts in out-of-the-way places were missed because the owners live in towns or cities. Probably most of the bees in towns were missed by the enumerators, because the town schedule did not mention bees or honey. The Census provision that "any tract of land containing less than three acres and which produced at least 250 dollars' worth of farm products in the year 1919, or required for its agricultural operations the continuous services of at least one person shall be reported as a farm" may have resulted in the listing of some town apiaries as well as some out-apiaries whose owners live in town. It is apparent that the proportion of colonies of bees listed by the enumerators must vary for different parts of the country according to whether the population is largely rural or urban, and also according to the degree of specialization in beekeeping in the locality. It would, therefore, be difficult to make an estimate of the actual number of colonies and production of honey from the Census figures alone.

The Crop Reporting Division of the Department of Agriculture is now collecting figures to determine the proportion of bees and honey production recorded by the census enumerators for various parts of the country, in order to obtain figures on the actual production of honey and the number of colonies in this country. Our readers can assist the Department of Agriculture in obtaining these figures, as explained in the following letter:

Gleanings in Bee Culture, Medina, Ohio.

Gentlemen:—Enclosed you will find a copy of a special inquiry being sent out by this Bureau, which will be self-explanatory. In undertaking this inquiry, it is hoped to get the consensus of opinion of the best-informed producers and all elements of the trade who may be able to furnish information. The inquiry is going to the regular lists of this Bureau but we should be pleased if you might find it possible to publish it, with an invitation to those of your readers who are not regularly reporting to the Bureau, to give their opinion of a portion or all of a county or larger

area and to furnish any special information bearing on the problem. Answers numbered to correspond with the questions asked is all that will be necessary. The questions need not be repeated. Reports may be addressed simply to the Crop Reporting Division, Department of Agriculture, Washington, D. C.

We shall appreciate any information you yourself may be able to give us.

We are making this request of all of the bee journals.

Very truly yours,

LEON M. ESTABROOK,

Associate Chief of Bureau, in Charge Division of Crop and Live Stock Estimates, Washington, D. C., July 31, 1922.

Following is the list of questions:

1. What per cent of all colonies of bees in your county in 1919 were kept in such manner that they would likely have been recorded by the Census enumerator? Ans.....per cent.
2. What per cent of all colonies in your county in 1919 were held in town or kept by commercial beekeepers or others in such manner or place that they would likely not have been recorded by the Census enumerators? Ans.....per cent.
3. What per cent of all honey produced in your county in 1919 would likely have been recorded by the Census enumerators? Ans.....per cent.
4. What per cent of all honey produced in your county in 1919 would likely not have been recorded by the Census enumerator? Ans.....per cent.
5. If you live in town, how many colonies of bees do you keep there or in out-apiaries? Ans.....number.
6. If you live in the country, how many colonies do you keep? Ans.....number.
7. Were your colonies recorded by the Census enumerator? Ans.....
8. About how many pounds of honey do you produce in an average year? Ans.....pounds.
9. What per cent of your honey is usually sold? Ans.....per cent.

Here is an opportunity to help in securing dependable figures as to the magnitude of the beekeeping industry in this country. The more replies to these questions that are sent in, the more nearly accurate will the figures compiled from them be. We urge our readers to send in replies at once, addressing the letter to the Crop Reporting Division, Department of Agriculture, Washington, D. C.



A NEW term is creeping into the bee literature of this country. Beekeepers are now



An Automatic Feeder for Winter and Spring.

talking about the "food chamber." Will the beehive of the future be made up of a brood-chamber, a food chamber, and the supers?

More and more beekeepers are learning the great value of leaving more stores in the hive than has formerly been practiced in this country. Some do this by feeding or by putting combs of honey from the extracting-super down into the brood-chamber, some by using a larger brood-chamber, and some by using a separate chamber for the food. This food chamber becomes a part of the brood-chamber during the spring brood-rearing period, but later it is filled with honey while located above a queen-excluder to insure sufficient stores for winter.

In some localities the problem of stores for winter and spring is taken care of by a fall honey flow, so that the brood-chamber is filled as brood-rearing wanes in the fall; but in many localities, when the extracting-supers are taken off at the close of the season, there is but little honey left for the bees, no matter how large the brood-chamber. When empty combs are given in the supers the bees are inclined to carry nearly all of the honey above, often leaving empty combs below. Even when by careful management the bees can be induced to store fall honey in the brood-chamber in sufficient amount for winter and spring, much of this fall-gathered honey is not safe for winter stores unless the bees are able to take a cleansing flight every three or four weeks during the winter. For this reason many northern beekeepers endeavor to induce the bees to store most of the late-gathered honey in the supers, and then feed heavy sugar syrup in October after there is no further chance for the bees to put in inferior stores gathered from the late flowers.

Where hundreds of colonies must be supplied with stores for winter and spring the labor involved is no small item, if the bees are to be wintered in single stories. Just now (the middle of September) there are thousands and thousands of colonies of bees occupying two stories, the upper one, or super, in many cases being fairly well filled with honey, but the lower one containing almost no honey. In many cases this super contains the remnant of the early-gathered honey which was left on the hive after the close of the early honey flow, because the beekeeper knew that to take it off would result in the colony starving or approaching the verge of starvation during late summer and fall. In other cases this super was filled with honey gathered from fall flowers. The problem which now confronts the beekeepers is whether to take off all these upper stories, extract the honey, and then feed his bees for winter; take out the queen-excluder and winter the bees in the two stories; or put most of the honey into the lower story, in order to be sure that the colony is supplied with sufficient stores for winter and spring. No wonder beekeepers are asking themselves the question whether it would not be better to leave this honey on the hive during the winter, provided it is fit stores for wintering if in the North. In California and other parts of the West wintering in two stories is coming to be almost the universal practice in large apiaries.

But why have a separate chamber for food? Why not have a brood-chamber large enough to hold the brood and an ample supply of stores at the same time, thus avoiding extra parts to the hive? This can be done to a certain extent in comb-honey production, and can also be done in localities having a dependable fall honey flow in extracted-honey production. The trouble with this plan for extracted-honey production for

most localities is that even the largest brood-chambers are not well stocked with honey at the close of the early honey flow. If there is no fall honey flow, colonies in such hives must either be fed or combs of honey must be put down from the supers if they are to be wintered in a single story. To make sure of having combs well filled with honey for winter when producing extracted honey, it is necessary in many localities to have them filled as supers, preferably above a queen-excluder.

The shallow extracting-super when used as a food chamber can be filled with early-gathered honey and left on the hive among the supers through the season; then, when the supers are all taken off, this food chamber, filled with the best early-gathered honey, is put into place immediately on top of the brood-chamber. In this way the colonies can be supplied with wholesome winter stores with almost no extra labor. In the spring when the first super is given, it is often an advantage to raise up the rim of honey in this food chamber in order to put the supers between the brood and the honey.

Some beekeepers paint this food chamber a different color to remind them that it must not be taken away when extracting. Some use a shallow extracting-super for the food chamber, while others use a regular standard hive-body for this purpose. An objection to wintering out of doors in a story-and-a-half or a two-story hive is the extra space for the bees to keep warm. But actual tests have proven that well-protected colonies winter well this way and do not need attention until late in the spring, being well provided with both stores and room. There is no doubt a limit as to how far north this plan of wintering can be used successfully, but it is now being used by some extensive honey producers as far north as Michigan and Ontario. Perhaps the ability of the cluster to expand and contract laterally in the space between the two sets of combs is an advantage sufficient at least partially to overcome the disadvantage of having more room to keep warm.

For many localities, probably for most localities, the separate food chamber is a great labor-saver. If we must sell our honey for 10 cents per pound or less, it is imperative that all short cuts possible be taken in its production. Such a food chamber becomes an automatic feeder that feeds the bees whenever they need feeding, even though the beekeeper is a thousand miles away. It becomes especially valuable as an automatic feeder in the spring, for colonies that are thus supplied with an abundance of stores are usually so much stronger in the spring than colonies not so well supplied that the automatic feeder is refilled free of charge most seasons, because such colonies often gain in stores during unsettled weather in the spring while weaker colonies are losing in stores.

BEFORE the Great War, and to a much greater extent during its continuance, American honey was going to Europe by the shipload. The high price secured during the war times enormously stimulated the production of honey; and even after the armistice was signed, and sugar had begun to take a tumble, and along with it honey, that enormous production of honey kept on just the same, notwithstanding that vast quantities which had been going to Europe stopped suddenly. It was evident that something had to be done to stimulate the consumption of honey in the United States, or else the prices of it would sink to a level never before reached. Our Gleanings staff called a council, and the result was that, notwithstanding we were bottling and selling honey, we came to the conclusion that the beekeeper himself, in view of the situation of no honey going to Europe and the large markets glutted, would have to sell more of his honey in his own locality. As is well known, we then began to publish a series of articles advocating local selling as well as roadside selling. The result of that campaign has been to convince many beekeepers that they could not only produce but dispose of their product almost at their own doors.

It is not my purpose at this time to take up the question of roadside selling, but to explain some tricks in packing honey, that have never before been given to the public. But before I do this—that is, tell how to fill the packages, whether tin or glass—I ought to say that selling honey in tin pails of 5 and 10 pound size has been enormously stimulated within the last two years. Immense quantities of extracted honey have been sold in tin and in jars right in the locality where it has been produced without its having ever once entered a freight or express car. Obviously it is better to encourage selling in 5 and 10 pound pails rather than in half-pound or one or two pound bottles. It is almost as easy to sell twice the quantities in tin as it is in glass. Right here you may say, "Why sell in glass at all?" In the great majority of cases honey in bottles is the forerunner of honey in the tin pail. It is necessary, therefore, for the local seller to know how to put up his honey in glass in order to develop a taste and demand for extracted honey in tin later on. In the large industrial centers, and especially among the working people, it is almost impossible to sell a larger than a half-pound tumbler or a one-pound bottle of honey. Many buy only a little of this and a little of that; and you may say what you please about the advantage of selling in tin and the advantage of selling a

BOTTLING AND SELLING HONEY

Some Tricks of the Trade Not Generally Known to the Beekeeping Public

By E. R. Root

large package instead of a small one, people of the poorer class can not and will not buy honey at all unless it is in a package costing not over 15 or 25 cents.

While the customer will buy granulated honey in a tin pail he will not buy what looks like lard in a glass bottle. Obviously the combination will not sell.

Now, then, we are ready to consider putting honey in the bottles so it will remain liquid for two years and without any froth or bubbles on top.

Heating Honey for Bottling.

In heating honey there is always danger of injuring its delicate flavor. Honey for bottling purposes should be light-colored and always good for table use. Dark or poorly flavored honey should be put up in tins or sold to the baker. It can not be emphasized too strongly that the beautiful light honeys for bottling can be very easily injured (1) by heating too long; (2) by raising the temperature too high; (3) by heating it too many times. Usually it is necessary to liquefy in 60-pound square tin cans all honey suitable for bottling. The usual plan is to stand the tin can right side up in a boiler of hot water. But the trouble with this plan is that it holds the portion that has been reduced to a liquid in a heated condition, while the other portion and the core are still unmelted. A far better plan is to place the square cans in a small hot room having a temperature of 125 to 150 degrees, and to have these cans, while in the hot room, placed upside down with the caps off so that the honey may drain away as fast as it melts, thus being carried away from the heat. It is then ready to be placed in a water-jacketed vessel and heated further until the proper temperature for bottling is reached. At no time should the honey itself be subjected to a temperature higher than 160 degrees. It should then be run into bottles and sealed while hot.

Some beekeepers have told me that after they poured the honey into bottles the bubbles or froth would form on top, and that they had allowed the jars to stand unsealed until this froth had disappeared, after which they put on the caps. This is all wrong. If the honey is allowed to cool and is then sealed it may granulate in six months, while if sealed at once it will remain liquid for two years, provided in the mean time it is not subjected to extremes of temperature or kept in a refrigerator or in a cold storage room.

How to Fill a Bottle Without Scum on Top of the Honey.

There is a little trick about filling a bottle with honey so there will be no froth or

seum on top, after which the bottle may be sealed immediately.

There is a filling device known as a goose-neck for filling bottles with honey that will leave no froth. It is a sort of honey-gate with a long snout, the other end of which connects with one end of a piece of rubber hose that leads from a tank of hot honey. The neck or snout should be long enough to reach down to the bottom of the deepest bottle used. The bottles, after washing or cleaning, are placed in a tray holding one or two dozen bottles at a time. This tray is then put within reach of this rubber hose, on the end of which is the gooseneck. To fill, the snout of the implement is placed near the bottom of the first bottle, when the hand lever opening the device allows the honey to escape from the end of the snout. As the honey passes out, the snout,

remains stationary and the stream of honey is supplied to each bottle. This saves handling of the bottles, which, of course, saves time. But the great feature of the gooseneck is not so much in the saving of time as it is in the elimination of white froth in the top of the bottle.

When a stream of honey six or eight inches long runs out from an ordinary honey-gate into a bottle, it gathers momentum as it falls and carries with it bubbles of air which, on rising to the top, form a seum or froth. When the gooseneck is used, the stream of honey is not more than half an inch long; and as it passes out from the end of the snout it does not carry any air bubbles, but neatly and nicely it fills the bottle in much less time than it takes to tell about it; and, best of all, it leaves no froth.

For the present, at least, a good machin-



The gooseneck—a device for filling jars without forming air bubbles in the honey. The snout is placed down into the jar near the bottom, then raised as the jar is filled.

or gooseneck, is slowly lifted by the hand, always keeping it within half an inch of the surface of the honey as it rises. As soon as the honey reaches the desired point in the neck on the bottle the lever closes the valve, when the operation is repeated with the other bottles in the tray, each time care being taken to introduce the snout to the bottom of the bottle and raising it as the bottle fills. In this way the whole dozen or more bottles can be filled one at a time without moving or touching a bottle. The operator simply moves the gooseneck from bottle to bottle. In the old-fashioned way of filling a bottle from a honey-gate, the honey falls from above the neck of the bottle, the bottle moves and the gate remains stationary. With the gooseneck the bottle

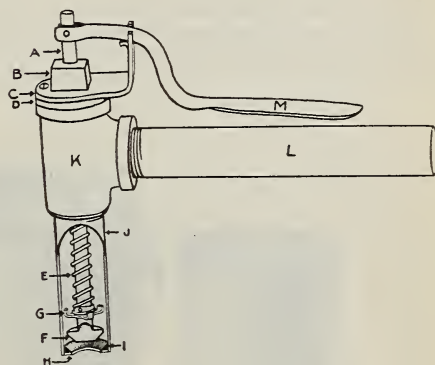


Diagram showing construction of the gooseneck filler. K, one-inch gas pipe T; J and L, two long one-inch nipples; B, plug screwed into upper part of T, forming a stuffing-box; M, lever; A, valve stem; C, fulcrum for lever; E, valve spring; G, radial arms; F, valve; H, washer, held in place by pins through nipple J; I, valve seat of soft metal.

ist can make one of these goosenecks from the illustration shown herewith by making use of a one-inch gaspipe T and two long one-inch nipples, one forming the snout and one at right angles to it forming the connection with the hose line attached to the tank containing the honey to be bottled. The opening in the bottom of the snout should be in the form of a poppet valve that is used in such a large way on automobiles nowadays. The bottom seat should be soldered in, and both parts of the valve should be ground to a fit. To make the valve seat properly so it will cut off the honey instantly, there should be little radial arms fastened on the valve stem that project out like the spokes of a wheel far enough to come in contact with the inside of the gaspipe. The projecting arms will guide the valve head into place. In the top opening of the gaspipe T there should be screwed a stuffing-box through which passes the valve stem. On the end of this stem should

be attached a lever shown in the illustration, so that the valve can be opened and closed with one hand while filling the bottles.

It is a very slow job to bottle cold honey; and, besides the fact that it will granulate very soon, it will flow so slowly that it makes the expense of bottling too large. To make the honey flow freely it should be heated to 150—certainly not more than 160 degrees; and if bottled in the manner explained, and sealed immediately, it will remain liquid for two years if kept in a living-room temperature—ordinarily about 70 degrees Fahrenheit.

If the honey can be sold within six months, a temperature of 140 degrees will be much better than one of 150. The higher the temperature to which honey is heated, the more of the original aroma is dissipated.

Packing Honey in Tin Pails.

So far I have explained how to put up honey in glass. While a gooseneck is very handy for tin pails it is by no means essen-

plished by allowing it to stand for a while in water not hotter than that in which the hand can be held.

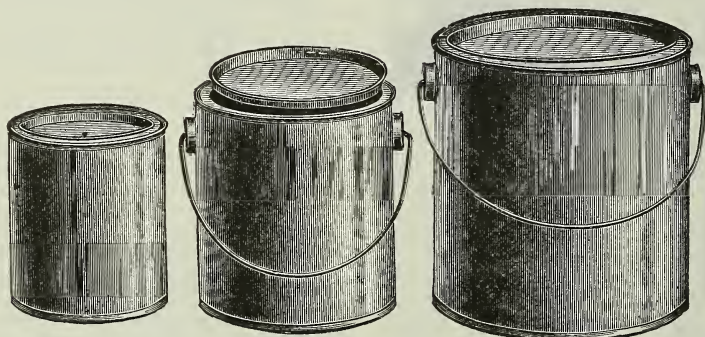
In Canada, granulated honey is put up in pails. Consumers in that country have been educated to eat honey in that form.

In the southern states a large part of the honey is put up in tin pails as "bulk honey." The combs are cut out of the frame in chunks of various sizes, put into pails, and then extracted honey is poured over the whole until the pail is full. In the southern states this kind of honey is all right, because in a warm climate honey does not granulate as it does here in the North. Granulated comb honey in the northern states will not sell, especially in the cities.

Importance of Attractive Labels.

In regard to labels, they must be neat and attractive. No local printing office—certainly no country printing office—knows how to get up an attractive label. The sale of bottled honey in glass may be almost killed because of a poorly printed label.

As a rule, labels on tin pails should go



Two and one-half-pound friction-top can, five-pound pail and 10-pound pail. The five-pound pail especially is becoming a popular package for honey.

tial. In fact, it is the general rule to fill the pails from the honey-gate. Neither is it necessary to heat the honey before putting it into pails. If the honey is to be shipped any distance the pails should be filled with cold honey, with the expectation that the honey will granulate soon.

In this connection it is only fair to say that honey just as it comes from the extractor has a quality about it—that is to say, a virgin aroma—that is very pleasing, that the same honey will not have after it has been heated. Heat dissipates some of the flavor unless one is very careful in applying it. As many people are learning to like granulated honey, and as it is better to ship honey in that form, it is unnecessary to heat the honey when pouring it into pails. But on every pail there should be printed directions stating that the honey will probably be in a solid or semi-solid condition; and that if it is desired to bring it back into the liquid condition this can be accom-

plished by allowing it to stand for a while in water not hotter than that in which the hand can be held.

Those who are putting up honey in tin pails by the carload are using a lithographed pail, the colors being red and white. These pails are used very largely in Canada, and to some extent in the United States. The lithographed pails certainly have a neat and professional look, and are very pretty. Some pails have been made without a rim on the inside of the top so the pail can be used for domestic purposes when the honey is out. I am told that a good many of the factory workers in Canada use these honey pails in carrying their dinner when going to their work. As the word "Honey" is lithographed on the workman's pail, that some honey is advertised to all his fellow-workers and to every one on the street. Such advertising costs nothing and is effective.

IT seems to me, as I review the past many years of honey production in the United States, with which I am somewhat well acquainted, the greatest need of beekeepers today is a national organization that will keep in touch with all the leading wholesale honey markets, and direct the shipping of honey in carlots where they are most needed to supply the market. After giving the subject considerable thought I cannot conclude otherwise than that the leading commercial honey producers of this country should get together and form this kind of organization.

For a number of years I have thought that the production end of beekeeping has been rather overworked. Most wide-awake honey producers do not seem to lack the ability to harvest a good crop whenever the nectar is in the flowers. What really worries them most is to find a profitable market for their honey after it is boxed up ready for shipment.

I am just wondering if it would not be a wise move on the part of the United States Government, through its efficient Division of Apiculture, to "lay off" for a while on the effort to teach beekeepers how to produce more honey, and for a year or two endeavor to discover some ways in which the commercial beekeeper can dispose of his crops of honey to a profitable advantage to himself.

[This is already being done by the Bureau of Agricultural Economics, of the United States Department of Agriculture, through a careful study of the honey market and the Market News service on Honey. The apicultural division of the Bureau of Entomology could not take up the problem of marketing, since this is the function of another bureau.—Editor.]

Two Cars of Honey Sold Below Cost of Production.

The thing that has caused me to discuss the honey marketing question again is a private letter received from central California, and dated August 10, 1922, in which the writer reports that "two carloads of new alfalfa honey sold recently in San Francisco for 5¼ cents a pound—about half the cost of production." Is there any good reason why good table honey should sell at any such low price as that, when at the same time sugar is ascending in price? Surely, there is something wrong somewhere.

There is no use blinking the fact, the honey marketing problem is becoming a very serious one, and it would seem that, if something really effective is not done about it pretty soon, there will be no large crops of honey to worry about in the not very far distant future. Just why should any pro-

THE MARKETING PROBLEM

A National Honey Marketing Organization Needed to Bring About Better Distribution of Honey

By Geo. W. York

had there been a suitable marketing organization, then no doubt it could have arranged to loan the producer about 25 per cent of the value of the honey offered for sale, until such time as it might have been disposed of at perhaps nearly twice the figure per pound at which it was sold.

It may be, too, that if a really live marketing organization had been "on the job" at the time the two cars of honey were ready for delivery, the organization, being in touch with all the principal markets, possibly might have directed that the two cars be sent where they would have brought more than double the price for which they were sold.

Is This a Function of the League?

It is just possible that the American Honey Producers' League could include such a work in its plans. One of its present aims seems to be to develop a wider family and individual consumption of honey, which is all right and a very worthy object; but this should be followed up by an effort to see that there is a more even distribution of honey in the markets. It certainly is not good business to ship most of the honey crop to one or two cities like Chicago or New York, and let the rest of the large centers of population go without any honey. Such unwise practice tends to demoralize prices where too much honey is sent, and then those forced low prices are likely to be taken as the standard for the rest of the country.

It does seem that there ought to be enough clear-minded beekeepers in the United States to take hold of this problem of marketing and solve it in a manner that would result in a fair profit to the producers of honey, and yet be entirely just to the consumers. It may take a few sessions to induce all the large producers to unite, but I believe when the stubborn and unwise ones once see the advantage of the kind of co-operation suggested, they will be only too glad to come in with the rest.

I do not suppose that anything I might say will cause the formation of such a honey marketing organization as I have indicated, but it may possibly set some others to thinking who may evolve a plan of handling large individual crops of honey so that there shall result a substantial profit to the producer rather than even a very small loss. There must be the right kind of method of doing this very necessary work—the question is, Can enough commercial honey producers be induced to get together, and stay together

ducers of honey accept only 5¼ cents a pound for good alfalfa extracted honey at the present time? Was it because the producer "needed the money?" If so,

long enough, to make a success of any plan that will eventually realize for the large producers an adequate price for their honey, so that they will feel encouraged to go forward and develop honey production along lines that will mean a real success, financially and in every other way, not only for the immediate future, but for many years to come, for all who desire to make a commercial success of beekeeping?

Is There an Overproduction of Honey?

After trying to view beekeeping and honey production from almost every conceivable angle for many years, I cannot avoid the feeling that there never yet has been a real surplus of good table honey produced in this country. And I don't believe a surplus will ever be produced, if a more even distribution is secured, and the present underconsumption overcome by a more universal demand for honey on the part of every family and individual among our population.

Take California as an example. It has been estimated that its annual honey crop is about ten million pounds. The 1920 census showed a population of about 3½ millions. Now, if all the honey produced in

California were consumed within its borders, each person would get only 3 pounds, or about one ounce a week during the whole year!

Wouldn't it be possible for California to use all its own honey every year? And if that state could do so, why could not all the other states do likewise? But states like New York, Pennsylvania and Illinois would still have to import honey, for there is not enough produced in those states to give all their populations even a small taste once a month!

Statistics show that there is an average per capita consumption of nearly 100 pounds of sugar in the United States annually. Now, why couldn't five pounds of that 100 pounds of sugar be replaced with honey? And the result would be a healthier and happier people in general, besides creating such a demand for honey that every pound of all eatable varieties would be consumed at a fair price per pound, so that both producers and dealers would do a nice, clean, honest business.

Am I visionary, or could this dream of mine ever come true?

Spokane, Washington.



MOST of the discussions on wintering in the books and journals deal almost entirely with winter protection—the protection afforded by a double-walled or packed hive, by windbreaks, or by placing the bees in a cellar or other repository where the temperature can be controlled. There seems to be an impression among many beekeepers that winter protection should solve the wintering problem, that the addition of packing about the hive or placing the bees within a cellar should enable any colony to live through the winter. With this conception of wintering if there is a winter loss, the winter protection is blamed for the loss and is therefore promptly condemned. To depend upon protection alone to bring the colonies through the winter in good condition is bound to result in disappointment in many cases. Too often the number of hives having bees in them are counted in the fall, and then again in the spring, the difference being considered the winter loss. Much of the so-called winter loss in this country is not winter loss at all, but is a loss brought about by some defect during the late summer and fall. The loss of colonies from some serious defect in the fall should not be charged to winter loss at all, for one can not lose that which he does not

THE WINTERING PROBLEM

How the Uncertainties of Wintering Can be Eliminated. An Inexpensive Packing Case

By Geo. S. Demuth

ter begins.

Some look upon wintering as being extremely complicated, having in it many uncertain factors. In fact, the idea of luck is still a factor in wintering in the minds of many. But there are now scores of beekeepers in the United States and Canada who winter their bees successfully year after year with practically no loss and who feel as certain of their results in wintering as the stock man does of wintering his stock. In fact, there is a less degree of uncertainty in the wintering of bees than in the case of other live stock on the farm, when the bees are given a fair chance.

As I pointed out in these columns last October, as well as at beekeepers' meetings throughout the country during the past 10 years, there are but three factors essential to successful wintering. These are: (1) Strong colonies of vigorous bees in the fall, most of which are young; (2) an ample supply of food easily available for the cluster throughout the winter, and, in the North where the bees cannot fly every few days this winter food should be of the best quality; (3) protection that is adequate for the

have. It would be asking entirely too much of winter protection to expect it to bring through the winter colonies that are not in a normal condition when win-

most severe winter than may come in the particular location. These factors are all within the control of the beekeeper, so the element of chance can be entirely eliminated.

The degree to which the first of these factors is present has already been determined. This is why beekeepers nowadays talk about beginning their preparations for winter in late July or August, in seeing that the bees have a good queen, preferably young, as well as sufficient food to rear enough bees to make the winter colony. If brood-rearing is kept up during the six or eight weeks just preceding the time it is naturally suspended for winter, the first of these three factors essential to successful wintering is taken care of. The condition of the colony, both as to the number of bees and the age of bees throughout most of the country, is very good this fall on account of an unusual amount of brood-rearing during August and September. (See the reports from producers on our market page in this issue.) To winter well the colonies need not be overly strong, but they must not be weak in either numbers or in the vitality of the bees. At the present time there should be at least three pounds of young bees in each colony in addition to the older ones. These young bees are the ones that may be expected to be on the job next spring, still young if they have wintered well. This is about the number of bees which experience has shown to be necessary in the spring at the beginning of the building-up period in order to be ready in time for the honey flow.

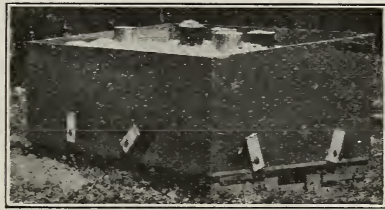
If any of the bees have swarmed during the season, the parent colony having the young queen may have more than this amount of young bees. The same thing is true with colonies that were requeened late in July or early in August. Where there was a honey flow during August and September most colonies should have more than three pounds of young bees at the present time. But where brood-rearing has not been kept up sufficiently to insure at least three pounds of young bees at this time, about the only thing that can be done is to unite until they are strong enough, even though the number of colonies after uniting is only one-half or less than the number before uniting.

Quantity and Quality of Winter Stores.

Beekeepers are learning that it does not pay to economize on the amount of stores for winter. While the bees may not consume more than 10 or 15 pounds of stores during the actual broodless period, for some reason they winter much better when their hive is fairly crowded with stores. As a rule, colonies which have 30 to 50 pounds of stores winter better than those having but 20 pounds. Not only do they winter better, but the great abundance of stores in the hive in the spring after brood-rearing begins is absolutely necessary if the colonies are to build up promptly in the spring.

In the North where the bees are confined to their hive for a long period during the

winter, the stores used during confinement must be of the best quality. Unfortunately, it often happens that the bees are compelled to use for their winter food the very poorest honey which they gather during the season. The best honey for winter stores is usually that which is gathered during the midst of the main honey flow of the season. This honey is usually stored in the supers and taken away by the beekeeper. If any of this early-gathered honey is stored in the brood-combs it is usually in the upper corners of the frames. The bees, in shaping their affairs for winter, store the later-gathered honey below the early-gathered honey. This is used first during the winter, and unless this later-gathered honey is of good quality the colony is no better off than if all of its stores were poor honey, for the early-gathered honey in the upper corners of the frame will probably not be reached until spring.



Winter packing case for eight colonies. Note feeder pails in position and buttons for reducing entrances.

Honey from white clover, alsike clover, buckwheat if not mixed with honey from other fall flowers, and alfalfa if not granulated, is good for winter stores. Any of these are better if gathered during a rapid honey flow. The great trouble with natural stores in the far north is the danger of inferior honey being mixed with the better honey or inferior honey being gathered so late that it is used first in winter.

In the far north where bees are wintered in the cellar or where outdoor-wintered colonies are confined to their hives for more than a month at a time without a cleansing flight, one way to insure perfect wintering year after year, so far as the stores' factor is concerned, is to feed a thick sugar syrup made of granulated sugar two parts and water one part. Some prefer granulated sugar two and one-half parts to one part of water. This thick syrup should be fed after brood-rearing has ceased and after the flowers are gone, so that the bees will not store more honey after the feeding has been completed.

Another way is to save some of the early-gathered honey to be placed where the bees will use it during winter. Some provide each colony with a shallow extracting-super of early-gathered honey of known good quality, this being put on top of the brood-chamber when the extracting-supers are removed. Others have this honey stored in standard sized frames, and either winter in two

stories or put some of this choice honey into the brood-chamber where the bees will be induced to use it first.

Winter Protection.

As a rule, the first thing that comes to mind as winter protection in outdoor wintering is a winter packing case or a double-walled hive. Later we think of protection from the wind. Both of these are needed, and it would be difficult to say which is of greater importance for the average northern location. In certain windy locations there is no doubt that protection against the wind is of greater importance than winter packing. But this is no reason for not having both.

Where the apiary is not already protected from the wind by buildings, by a hill, by a hedge or a thick growth of young timber, or by some other natural protection, some kind of windbreak should be erected. In some cases a temporary windbreak can be made by storing corn fodder along a fence in such a manner that the force of the wind is broken. Where the apiary is partially protected by buildings it often happens that the location of the building is such that the sweep of wind between the buildings through a portion of the apiary is greater than out in the open. In such cases the gap between the buildings should be closed by some kind of windbreak.

A high board fence about eight feet high makes a good windbreak, but the boards should be spaced about an inch apart to permit some of the air to pass through, thus preventing the wind sweeping over the top of the fence, then down on the other side.

Winter Packing.

Whether the packing is in the form of permanently packed hives or in the form of winter cases set over single-walled hives with packing between, makes but little if any difference so far as wintering is concerned, provided the packing is adequate. Neither does there seem to be any great difference in the way the bees winter when packed singly or in groups of two, four or more colonies in a packing case. The larger cases cost less per colony, but for convenience in handling the bees during the summer most beekeepers prefer to have not

more than four colonies in one group, two facing east and two facing west. Some object to this grouping, preferring to have the hives all facing away from the prevailing winds; but this is not at all necessary, if a windbreak is provided and the entrances reduced as they should be.

If the lay of the land in the apiary makes it desirable to have the hives all face the same direction, either the two-colony winter cases or single-colony cases are usually used. Packing several colonies in a row has so many disadvantages that this plan is not much used. It usually results in drifting, and the inconvenience of either having hives close together during the summer or moving them apart in the spring is objectionable.

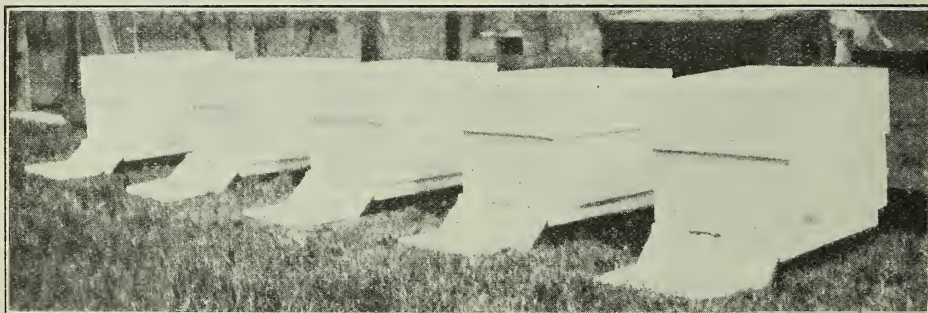
Permanently packed hives have many advantages where apiaries are not moved about much. In many cases such hives afford the best solution of the problem of winter packing.

Thickness of Packing.

The amount of packing used by beekeepers varies all the way from less than two inches on the sides up to eight inches; on the top, from three or four inches up to a foot or more; and below the hive, from none at all to about four inches. There is now a strong tendency toward building standard winter packing cases to hold four inches of packing below, six inches on the sides and eight to ten inches on top, though in some cases more than this is used. Colonies properly packed in such winter cases have been wintered well year after year in the extreme northern part of the United States and in Canada. Beekeepers cannot well be expected to agree upon the question of the thickness of packing, for in a location that is well protected from prevailing winds two or three inches of packing may afford as much protection as six or eight inches in another location badly exposed to strong winds. Since it costs but little more to build a packing case a couple of inches longer and wider and since the packing material is usually not expensive, it is better to err on the safe side and provide for ample packing.

Material for Packing.

It is well to remember that the heat-re-



Double-walled hives with built-in packing are easily prepared for winter.

taining properties of the packing material are in the minute air spaces within this material. If material too coarse, such as straw, excelsior, or coarse planer shavings, is used, the air spaces being large will permit some circulation and therefore a more rapid loss of heat. The packing material should be fine enough to prevent this. For the same reason the space between the walls of a double-walled hive should not be left unpacked. If the confined air in this space could not circulate there would be no need of packing, but the difference in the temperature of the inner and the outer walls causes air currents within this so-called "dead-air" space that result in a rapid loss of heat unless this space is filled with packing. In this sense the function of the packing material is to prevent the movement of the air between the outer and the inner walls, the confined air itself being the means of preventing the rapid escape of the heat. Wheat chaff if obtainable, fine planer shavings from a planing mill, forest leaves that are broken and crushed so that the spaces between are small, or dry sawdust are the materials most commonly used. In any case, the packing material must be kept dry since wet packing would be worse than none.

Loss of Heat by Air Currents.

No matter how much packing is put around a hive, if a large entrance is left wide open the packing will do but little good. The same thing is true if cracks or openings other than the entrance are left where currents of air can pass through. Those who use the double-walled hive having a tray with burlap bottom for holding the packing on top should snug down the packing material around the outer edge of the tray to be sure there can be no air currents between the lower edge of the tray and the water table below. If the hive could be hermetically sealed with the exception of a small entrance, there would be but little if any loss of heat from air currents. In the far north where a slight amount of upward ventilation may be necessary to prevent the condensation of moisture within the hive, it is well to place a sheet of newspaper above the quilt to prevent air currents from

passing out through the packing at the top of the hive.

The Entrance.

The bridge or tunnel forming the entrance through the packing should be generous in size, and the entrance proper reduced to the required size on the outside. In most cases $\frac{1}{8}$ of an inch high by the full width of the hive is plenty large enough for the tunnel, though some beekeepers prefer to have the tunnel $1\frac{1}{2}$ or even 2 inches high and not so wide. An opening through the outer case 6 or 8 inches wide and the same height as the tunnel, but provided with a button fastened at one side of the opening and of such a length that it closes the opening except about three-eighths of an inch wide at the end, is a good construction for the entrance. When this button is turned in the position to close the entrance it forms a winter entrance $\frac{3}{8}$ of an inch wide and from one to two inches high, according to the depth of the opening in the outer case. Such an opening could not well become clogged with dead bees, even though none should be carried out of the hive during the winter. Instead of this construction some prefer to bore four or five $\frac{1}{2}$ -inch auger holes through the outer case, and close all of these except one or two during the coldest weather. There should be no alighting-board attached to the outer case because this only serves to collect the snow or sleet during the winter.

Paper Winter Cases.

Those who do not care to invest in expensive winter cases can winter their bees just as well in winter cases made of tarred paper at very little expense. When slater's felt is used and the bees are packed in groups of two colonies each the expense for the tarred paper is less than six cents per colony. This material is so cheap that it is best to burn up the paper in the spring when unpacking and buy new each year. This method of packing bees was described in the October (1921) issue. Those who do not have this number of the journal can no doubt pack their bees in this way by studying the illustrations on pages 644 and 645 in this issue. When a form such as there described is used bees can be packed rapidly by this method.



Apiary in Kansas packed in cases made of tarred paper tacked to a light framework.

NOT EXACTLY BEEKEEPING; BUT—

More About the Bee-Sting Rheumatism Cure.

One day, not a great while ago, Mr. Middlerib read in his favorite paper a paragraph stating that the sting of a bee was a sure cure for rheumatism, and citing several remarkable instances in which people had been perfectly cured by this abrupt remedy. Mr. Middlerib thought of the rheumatic twinges that grappled his knees once in a while and made his life a burden.

He read the article several times and pondered over it. He understood that the stinging must be done scientifically and thoroughly. The bee, as he understood the article, was to be gripped by the ears and set down upon the rheumatic joint and held there until it stung itself stingsless. He had some misgivings about the matter. He knew it would hurt. He hardly thought it could hurt any worse than rheumatism, and it had been so many years since he was stung by a bee that he had almost forgotten what it felt like. He had, however, a general feeling that it would hurt some. But desperate diseases require desperate remedies, and Mr. Middlerib was willing to undergo any amount of suffering if it would cure his rheumatism.

He contracted with Master Middlerib for a limited supply of bees humming and buzzing about in the summer air. Mr. Middlerib did not know how to get them. He felt, however, that he could safely depend upon the instincts and methods of boyhood. He knew that if there was any way under heaven whereby the shyest bee that ever lifted a 200-pound man off the clover could be induced to enter a wide-mouthed glass bottle, his son knew that way.

For the small sum of one dime Master Middlerib agreed to procure several, to wit: six bees, sex and age not specified; but, as Mr. Middlerib was left in uncertainty as to the race, it was made obligatory upon the contractor to have three of them honey and three humble, or, in the general accepted vernacular, bumblebees. Mr. M. did not tell his son what he wanted these bees for, and the boy went off on his mission with his head so full of astonishment that it fairly whirled. Evening brings all home, and the last rays of the declining sun fell upon Master Middlerib, with a short, wide-mouthed bottle comfortably populated with hot ill-natured bees, and Mr. Middlerib and a dime. The dime and the bottle changed hands. Mr. Middlerib put the bottle in his coat pocket and went into the house, eyeing everybody he met very suspiciously, as though he had made up his mind to sting to death the first person who said "bee" to him. He confided his guilty secret to none of his family. He hid his bees in his bedroom, and as he looked at them just before putting them away he half wished the experiment was safely over. He wished the imprisoned bees

did not look so hot and cross. With exquisite care he submerged the bottle in a basin of water and let a few drops in on the heated inmates to cool them off.

At the tea-table he had a great fright. Miss Middlerib, in the artless simplicity of her romantic nature, said: "I smell bees. How the odor brings up—" But her father glared at her, and said, with superfluous harshness and execrable grammar: "Hush up! You don't smell nothing."

Whereupon Mrs. Middlerib asked him if he had eaten anything that disagreed with him, and Miss Middlerib said: "Why, pa!" and Master Middlerib smiled as he wondered.

Bedtime at last, and the night was warm and sultry. Under various false pretenses, Mr. Middlerib strolled about the house until everybody else was in bed, and then he sought his room. He turned the lamp down until its feeble ray shone dimly as a death-light.

Mr. Middlerib disrobed slowly—very slowly. When at last he was ready to go lumbering into his peaceful couch, he heaved a profound sigh, so full of apprehension and grief that Mrs. Middlerib, who was awakened by it, said if it gave him so much pain to come to bed perhaps he had better sit up all night. Mr. Middlerib choked another sigh, but said nothing and crept into bed. After lying still a few moments he reached out and got his bottle of bees.

It was not an easy thing to do to pick one bee out of the bottleful with his fingers and not get into trouble. The first bee Mr. Middlerib got was a little brown honeybee, that wouldn't weigh half an ounce if you picked him up by the ears, but if you lifted him by the hind leg would weigh as much as the last end of a bay mule. Mr. Middlerib could not repress a groan. "What's the matter with you?" sleepily asked his wife. It was very hard for Mr. Middlerib to say he only felt hot, but he did it. He didn't have to lie about it, either. He did feel very hot indeed—about 86° all over, and 197° on the end of his thumb. He reversed the bee and pressed the warlike terminus of it firmly against the rheumatic knee. It didn't hurt so badly as he thought it would. It didn't hurt at all.

Then Mr. Middlerib remembered that when a honeybee stabs a human foe it generally leaves its harpoon in the wound, and the invalid knew that the only thing this bee had to sting with was doing its work at the end of his thumb.

He reached his arm out from under the sheets and dropped this disabled atom of rheumatism liniment on the carpet. Then, after a second blank wonder, he began to feel around for the bottle, and wished he knew what he did with it.

In the meantime strange things had been going on. When he caught hold of the first bee, Mr. Middlerib, for reasons, drew it out in such haste that for a time he forgot all about the bottle and its remedial contents, and left it lying uncorked in the bed, between himself and his innocent wife. In the darkness there had been a quiet but general emigration from the bottle. The bees, their wings clogged with the water Mr. Middlerib had poured upon them to cool and tranquilize them, were crawling aimlessly about over the sheet. While Mr. Middlerib was feeling around for it, his ears were suddenly thrilled and his heart frozen by a wild, piercing scream from his wife.

"Murder!" she screamed. "Murder! Oh! Help me! Help! Help!"

Mr. Middlerib sat bolt upright in bed. His hair stood on end. The night was warm, but he turned to ice in a minute.

the sole of Mrs. Middlerib's foot, she shrieked that the house was bewitched, and immediately went into spasms.

The household was aroused by this time. Miss Middlerib and Master Middlerib and the servants were pouring into the room, adding to the general confusion by howling at random and asking irrelevant questions, while they gazed at the figure of a man a little on in years, arrayed in a long night-shirt, pawing fiercely at the unattainable spot in the middle of his back, while he danced an unnatural, weird, wicked-looking jig by the dim religious light of the night-lamp. And while he danced and howled, and while they gazed and shouted, a navy-blue wasp that Master Middlerib had put in the bottle for good measure and variety, and to keep the menagerie stirred up, had dried his legs and wings with a corner of the sheet, and, after a preliminary circle or



"Where in thunder," he said, with pallid lips, as he felt all over the bed in frenzied haste, "where in thunder are them infernal bees?"

And a large "bumble," with a sting as pitiless as the finger of scorn, just then climbed up the inside of Mr. Middlerib's nightshirt, until it got squarely between his shoulders, and then it felt for his marrow, and said calmly: "Here is one of them."

And Mrs. Middlerib felt ashamed of her feeble screams when Mr. Middlerib threw up both arms, and, with a howl that made the windows rattle, roared: "Take him off! Oh, land of Scott, somebody take him off!"

And when a little honeybee began tickling

two around the bed to get up his motion and settle down to a working gait, he fired himself across the room, and to his dying day Mr. Middlerib will always believe that one of the servants mistook him for a burglar and shot him.

No one, not even Mr. Middlerib himself, could doubt that he was, at least for the time, most thoroughly cured of rheumatism. His own boy could not have carried himself more lightly or with greater agility. But the cure was not permanent, and Mr. Middlerib does not like to talk about it.

[An article by Robert Jones Burdette (1844—) in the New York Weekly, not now existing.]



HOMEMADE PASTE FOR LABELS

How to Make Paste that will Stick to Either Tin or Glass

Here is a recipe for making a paste that will stick labels to tin or glass so they will not come off. It is the surest to stick and the simplest to make of any paste that I know of, and I do not think the recipe has ever been published. I give the directions for a small quantity, and those wanting a larger amount can increase the proportions.

Place one ounce of cornstarch in a small pan or other vessel, and then measure out one and one-half pints of water. Add a little of the water to the cornstarch and rub it or stir it until smooth, after which add the rest of the water and mix thoroughly. Shake into this powdered lye, stirring briskly all the while until it turns thick and becomes transparent. Instead of the powdered lye a strong lye solution can be made up and a little of this added instead. Be careful and do not add any more lye than necessary. If a wide-mouthed bottle is used to mix in, the mixing can all be done by placing the cap on the bottle and shaking vigorously. This paste keeps quite well, especially if put in a cool place; and after making it a few times it can be done without measuring the ingredients and can also be made very quickly. It should be quite thick for best results, and if too thick it can be thinned by adding water. If you have ever had trouble in making labels stick to tin try this next time, as it will surely do the work and is inexpensive.

Brigham City, Utah. J. H. Peterson.

ALFALFA YIELDS IN THE EAST

Forty Pounds of Surplus Secured from this Plant in Pennsylvania in 1921

It is quite generally believed that alfalfa does not yield nectar in any quantity east of the Mississippi; and I must say in my first seven years of beekeeping experience I never saw a bee on alfalfa bloom, nor alfalfa produce seed. I was certain I would never get any surplus honey from it in this section. But alfalfa gave me a surprise last year (1921), for it yielded not only nectar but a surplus of honey, which in some colonies reached 40 pounds, and that which was allowed to stand produced a big crop of seed.

The first cutting of alfalfa was very late last year, due to late frosts and rainy weather at harvest time. Some of it was cut as late as July 25 and very little by July 8. The second cutting grew very fast. It was

this second cutting that yielded the nectar. It began to bloom when about 12 inches high, and instead of a few small flowers it was covered with large fully developed bloom.

This honey flow came at a time when there was nothing else for the bees to gather. It kept the colonies strong for the fall honey flow from aster and goldenrod, and in excellent condition for winter. As a result they wintered 100 per cent, and I had such strong colonies this spring that I took quite a surplus during fruit bloom.

Why did alfalfa yield so heavily last year when it had yielded little or nothing before? Was it the season? Because it was cut late? or has it become acclimated?

At that time I thought it was because the first crop was cut so late. Some fields that were cut early didn't yield at all, but this year the first cutting yielded nectar during May. And the second cutting promises to do as well as last year or better.

Landenburg, Pa.

John Lund.

BEEES ROB COLONY BEING FED

How a Beginner Learned a Valuable Lesson in Feeding Late in the Season

Last year was my first experience with bees. I bought three colonies from an old lady neighbor. These were in old box hives, and my experience began immediately. I had supplied myself with eight-frame Jumbo hives complete and made the transfers in approved form, save only the stings were not omitted. One of the old boxes being especially frail and open, I got an unusual number of stings, but I never rested till all were properly in their new homes and in place under my splendid peach trees. This transfer was made late in August, and I soon found it would be necessary to feed. Here is where my first disaster occurred.

I read everything they sold me on "Feeding" and proceeded. I bought 100 pounds of sugar and with carefully prepared friction-top tins gave it to them, not forgetting the temperature. My tenants were properly housed on full sheets of the best Aircro foundation. I forgot, after supplying the tempting sweet, to contract the otherwise large entrances. After a while I looked in to see how snugly they had placed their stores. Can you imagine my surprise? Not a comb drawn, not a cell filled! Don't say "Robbers!" I guess I know it! If I hadn't had two other old colonies in the orchard, my disaster would have been complete. Not only was my sugar gone, but the colonies thus robbed died of starvation. I was re-

FROM THE FIELD OF EXPERIENCE

minded of the scripture, "To him that hath shall be given, and from him that hath not, shall be taken, even that which he hath."

But my two old colonies saved the day. They were the robbers. With the extra stores they came out this spring with strong forces. From one of these I took 75 pounds of comb honey (and a bad year, too), and then divided it four ways. With three young queens I now have four likely nuclei, which I have carried to the near-by cotton fields to build up. Here they will have at least 90 days of bloom before frost. The other colony I divided early and raised my own queens, so that I now have a total of eight colonies and am both richer and wiser. By the way, I also got the biggest fruit crop I have ever had.

Fort Worth, Tex.

Ocie Speer.

A YOUNG BEEKEEPER

What Beekeeping Can Do for Boys. Value of Bees as Pollinators

George Pettee of Hartford is the youngest member of the Connecticut Beekeepers' Association. He started keeping bees at the age of thirteen with one colony, and celebrated the Fourth of July with his first swarm. As will be seen by the photograph of him on that historic occasion, his methods at that time were primitive. That is to say, letting bees swarm may now be called primitive, though in his case a modern queen trap was successfully used. Although the season was late, this swarm gave him some very superior comb honey before the clover honey flow was over.

There were about 20 young fruit trees in the garden where George kept his bees, and after the introduction of his colony the fruit crop was more than doubled. George and his younger brother Charles negotiated with the family for the privilege of selling the surplus fruit. It netted over \$75 in one season. This sum bought a Novice extractor and the equipment for four colonies.

Their business has overgrown its city location, and at their earnest request the family has recently purchased an old abandoned farm on the Connecticut River. The place is well known as Rivercrest, and is overgrown with sumac. They hope to restore its old neglected orchards, and develop it in fruit, bees and poultry, putting in their vacations in hard work through their college years.

Since acquiring the Novice extractor George has had no swarms. His colonies are so large that they have to be wintered with supers, and supers are added as fast as the queen enters them. When the clover flow begins the queen is confined to the first

floor, and the honey frames are extracted and returned to the supers as fast as they are finished. By finished we mean wholly capped. During our second season we acquired a beautiful supersedure queen. She built up our strongest colony, and no queen-cells are ever found in her household. She is a good ruler. Her workers are the first out after a rain, and the last to submit to a drizzle or cold wind. Needless to say, they store more honey than our other colonies. This fall, however, all four colonies go into the winter with queens bred from this mother. To get them we gave other colonies frames from her hive, first removing their queens, later selecting the biggest queen-cells on these frames.

We live in a part of Hartford which is suburban in character, and find it a good location for beekeeping. Our colonies average over 50 pounds in poor seasons. The bees store an early surplus from ornamental trees and shrubs, and later the lawns abound in white clover.



The youngest member of the Connecticut Beekeepers' Association.

At the end of the early honey flow this year we put out a sign reading "Fresh Honey, 45c a lb." We had to take it in in three days, sold out, although the residence street on which we live is not a much-used thoroughfare.

Interests of this character are very stimulating for boys, and have a character-building influence which many of the established courses in our educational system can never attain. A boy can hardly find a better lesson in civics than a beehive will give him. He learns valuable lessons in natural laws. He must practice self-control or fail. He cannot evade responsibility in caring for live creatures. He must be faithful to this obligation or witness the suffering that will

FROM THE FIELD OF EXPERIENCE

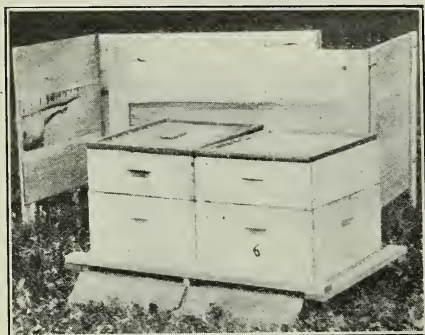
be the consequence of his neglect. The demonstrations ever before him of the results of principles of up-breeding put into practice give him ideas which ought to result in a better human race if more boys could be exposed to them. Less theory and more practice in the science courses in our dry educational system ought to bring our civilization nearer to the perfection of the colony life of the hive. Edith Pettee.

Hartford, Conn.

FORM FOR PAPER PACKING

How to Make One That Prevents the Sides From Bulging

I tried packing a few colonies by the paper method shown in October Gleanings last year. It is very cheaply and quickly done, but I use a 4-inch frame instead of a



Rim in place at lower edge of hives. Form taken apart at back.

two-inch frame as there described. My bottom-boards are 24 inches long. I pack two colonies to the case, and I had trouble with my paper bulging too much in the middle at the expense of the corners, so I tried making a box out of some empty store boxes I had on hand. They were of $\frac{3}{8}$ -inch lumber. I made the box in two parts, one end and one side in each part. The sides and ends are 24 inches wide, having a 1 x 2 inch cleat nailed at each corner, the cleat extending 6 inches below the sides. The open corners are held together with hooks and eyes. When the paper is tacked to the frame ready to fill, I set the two halves of this form around the hives and fasten with the hooks. This holds the paper from bulging, and the corners fill out better and the paper will stand more tamping. When filled unhook corners and you have a nice square uniform packed case. By letting the cleats extend below the sides, if the hives are on uneven ground, the cleat on the high

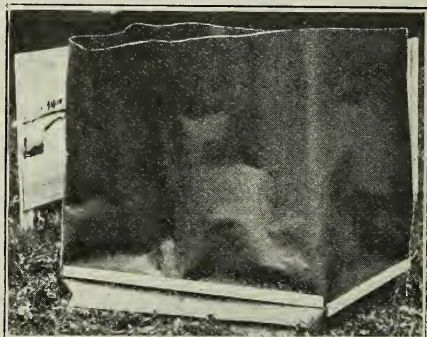
side can be pressed into the ground to make the form level. The cleats should be nailed on the outside, and the form should be made large enough to go around outside of the case easily. One inch larger than the case frame each way is about right. S. Rouse.

Hebron, Ky.

ROBBING BEES TEAR DOWN COMBS

Peculiar Behavior of Bees in Robbing. Effect of Feeding Queenless Colony During Dearth

In the last part of July I put two Mason fruit-jar feeders on a hive of bees that was queenless and had no honey. I had planned to introduce a queen and tried to fill them up. Imagine my surprise when soon after the feeders were on I found that the platform entrance to the hive was completely surrounded with pulverized comb. I at once



Slater's felt tarred paper fastened at lower edge by tacking on lath.

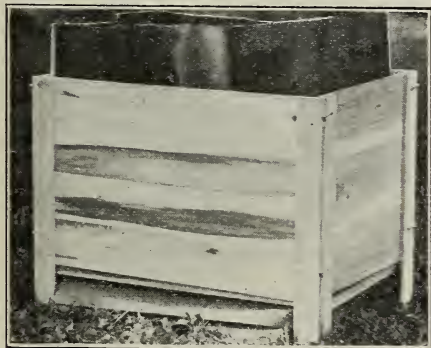
opened the hive and found that the bees had torn down the cell walls of the combs, leaving merely the middle foundation. It is evident that the whole apiary went to robbing this particular colony and one other, with the same results except that there was not so much comb around the entrance but innumerable dead bees. Has any one else had experience with such annihilation started by feeding a queenless colony? The robbing of the sweets is easily understood, but what could possibly be the reason for pulling the comb all to pieces? I am sure there was not a drop of honey in the hive when I started feeding. Edward F. Bigelow.

Sound Beach, Conn.

[It is quite the common thing for robbing bees to gnaw down the combs when robbing out a single colony. It has long been known that when extracting-supers are placed out in the open to be cleaned up by the bees after the honey has been extracted, if only a few sets of combs are given the bees will

FROM THE FIELD OF EXPERIENCE

tear them down almost completely. To prevent the bees from tearing down the combs in this manner, it is necessary to give them a large number of combs to clean up. The same thing is true when unfinished sections are placed outside to permit the bees to clean them up. If only a single super of unfinished sections were exposed the bees would no doubt gnaw out the combs almost completely. They do this because they crowd upon each other so much, sometimes piling up several deep on the combs. When they behave in this manner a bee that can come in contact with comb will tear it away in order to secure some honey. Sometimes even when there is no honey left in the combs the bees, evidently thinking that there is still some there, will crowd on the comb and tear it down as here described. In the general excitement and scramble the bits of wax are pulverized and pushed out at the entrance.—Editor.]



Form set in place and hooked at corner ready for packing.

FALL TREATMENT

Shaking on Combs Filled with Honey in Fall after Brood Rearing has Ceased

It seems to me it is a shade safer to shake the infected bees on to empty frames instead of on to full combs of honey, and especially so if there are a few unfilled or uncapped cells.

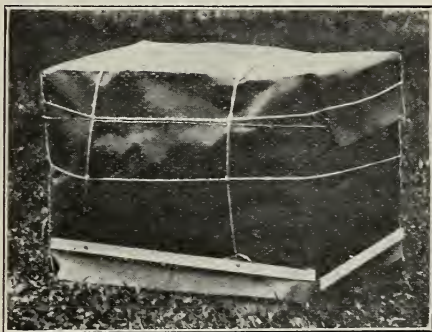
In shaking on to empty frames it is necessary to have some prepared bee candy, a pound or more for each colony treated, and this to be placed where the bees can readily gain access to it, preferably on top of the frames. This can be given immediately after the bees are shaken; but seemingly the best plan is to wait about 24 hours, and then the candy may be placed right over the cluster.

Leave the bees thus for three or four days, when some of the empty frames should be removed and combs of honey placed right

against the cluster, which will soon occupy the combs given; or, in case of strong colonies, set a hive containing the necessary number of full combs on top of the hive containing the bees. The bees will soon go up; then the lower empty hive may be taken away, and the upper one put in its proper place.

It seems that this would almost insure that the bees would consume all of the infected honey taken when shaken, and be rid of the spores before coming in contact with the non-infected combs. At least I have treated several as above described, and they were free from disease the next year.

In giving combs of honey to bees thus treated it has generally been my practice not to give a full hive of combs. If the colony is just fair in strength, I give three or four combs; if strong, I give five or six combs. About the middle of April or perhaps sooner I look them over and add more



Packing completed. Note how cover is folded and the whole tied like a package with twine.

combs of honey as needed until the hives are filled, always taking care that the stores are ample.

L. S. Harner.

Colorado Springs, Colo.

THE OUT-CLUSTER AT MORNING

The Beginning of a New Day in the Hive. How the Colony Awakens

One of the most interesting things to watch about the hive is the behavior of the out-cluster from dawn until work begins.

After the cool hours of the night the cluster outside the hive is slightly torpid. The wings of the bees are close to their bodies; their antennae not very erect; their legs drawn in close to their thoraces. The vigorous fanning of the bees inside can be heard, but not a wing stirs on the entrance-board or above it where the cluster is. The bees clustering out take up, seemingly, all

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the space of the entrance and keep out the air, but air must get in between them, else all inside would perish.

Now the light gains a little; the mists in the valley begin to lift. The first breath of dawn-wind comes. The bees in the out-cluster act as if stirred imperceptibly. A wing is lifted here and there, an antenna waves, legs move. But the bodies remain quiet.

The flush of dawn on the eastern hill grows and grows. Suddenly the sun itself peeps over, sending a ray across the intervening space. It goes high overhead, but its influence has been felt in the air, for the atmosphere seems a little warmer. The mists, like magic, have gathered, and now clear spaces appear here and there. The ray of the sun grows less and less as a cloud drifts in between it and earth, and then the out-cluster quiets. But as the cloud passes the sun has come up far enough to send its full beams straight into the valley and they strike the hive. And now—presto! From the interior a busy worker, bent upon some early errand—getting water, pollen or something else a new baby bee needs—comes out from between the listless ranks of the out-cluster, shoving the somnolent bees aside unceremoniously. She pitches out into the golden space of the dawn with a determined “zum-m-m-m-m!” as who should say: “Come, laggards; there’s work to do. Follow my example.”

Another follows and another. Each, in passing, stirs up the cluster; and now suddenly a bee, that must have been caught far from home by the early, cloudy night-fall of the day previous and rested all night under a clover bloom or broad blade of grass, comes home with her load. She pitches on to the alighting board, striking the now awakening cluster-bees with a bang, buzzes through them and is gone.

Many other bees come from the interior of the hive; others begin to arrive from the near-by places to which they have gone for their earliest loads of emergency rations. All this passing and pushing have stirred up the out-cluster. Its members brighten up at each jostle, and suddenly one of them, taking the fever, perhaps warmed up now by the gaining sun, launches forth. Her nearest neighbor, feeling no longer the touch of the absent one, stirs about inquiringly, runs about a little, and then she, too, pitches off the board and is gone. Another and another follow suit and then by twos, threes, fives, tens and finally by the hundred, the bees of the out-cluster go to the field, accompanied by the eager myriads that have been meanwhile issuing from the interior of the populous community. The hive is awake!

George Gilbert.

Port Dickinson, N. Y.

COLLEGE AND BEES

How a Student Earns Enough During Summer to Attend College in Winter

Edmund Daggett, a student at the University of Minnesota, is beekeeping his way through college. An apiary of 130 colonies of bees on his father's farm pays the room rent, laboratory fees and board bills.

Eight years ago this spring Daggett bought one colony of bees. During the summer he bought two more, and two more were added by swarming. In the fall he started to school at the State Agricultural College.

As time went on, Daggett's bills increased. But so did the bees. Soon they were paying most of the expenses. During summer vacations Daggett had plenty of time to look after the bees.

“Beekeeping is a fine way to get through college,” says Daggett, who is now taking a course in the graduate division of the university. “During the fall, winter and spring when college is in session, there is little work to be done in the beeyard, nearly all of the work with the bees being concentrated in the three months of the summer vacation. No other occupation offers such an ideal distribution of work for college students. To be sure, when many colonies are kept it is necessary to make occasional visits to them over week-ends, especially during the spring months.”

When college is out in June the bees have already begun to work in the clover fields, and it is necessary to see that they have plenty of storage room for the honey that is coming in. Swarming is prevented as much as possible, which is not difficult when extracted honey is produced. In July and August the honey is prepared for market. It is put up in sixty-pound cans and in five and ten pound pails. In August and September the bees are put in condition for winter. Each colony, to winter safely, must be strong, must have plenty of honey of good quality and must be headed by a good queen.

The bees are put in the cellar in November, a trip home being made for that purpose. After that they are left almost entirely alone until it is time to put them outdoors again the first of April. During April and May they are visited for a day or two every two or three weeks, in order to build them up strong for the new honey flow in June.

“Go slow and let the bees pay their own way,” is Daggett's advice to those who may want to follow his example. “It is best to start with not more than perhaps three colonies, and to buy these in the spring. They will increase by swarming to six or eight the first year, if no swarm-control method is used.”

Narberth, Pa.

E. A. Kirkpatrick.

FROM THE FIELD OF EXPERIENCE

HONEY PRODUCERS' LEAGUE

A Message from the New President of the American Honey Producers' League

Never was there a time in the history of American beekeeping when organization among beekeepers is more necessary than at the present time. The beekeeping industry is sufficiently large in the United States to warrant a national organization of great strength. However, each individual beekeeper seems to feel that his business is not sufficient to warrant his taking an active part in such an organization. There also seems to be a feeling among beekeepers that the allied industries and the bee journals are not working for the best interest of the beekeeper. In a few cases this may be true, but in general the supply dealers, the honey bottlers, can-manufacturers and other trades are much more interested in the success of the beekeeper than is the beekeeper himself. In fact the allied trades have done more to make the beekeeping industry a success than have the beekeepers.

Low prices for honey, in most cases, can be traced to price-cutting by individuals who have no conception of the effect of their acts upon the whole market condition. Local organizations for marketing honey have been formed at one time or another in the main honey regions of America. However, these for the most part have failed to succeed because the beekeepers themselves do not support the organizations with which they are connected. In a number of cases where these organizations have worked satisfactorily, individuals and even groups of beekeepers have worked against them with a very demoralizing effect.

The executive committee of the American Honey Producers' League requests each and every individual and agency, including supply dealers and bee journals, to support the League both morally and financially. In the near future we hope to be able to devise some means of contact with every individual member of the League through circulars or bulletins. While this movement is getting under way, it is necessary that we have the support of every bee journal and other bee publications to further our cause. I am therefore requesting at this time that each of these publications give us space for discussion of the League and getting information before the beekeepers of every state.

H. F. WILSON,

President, American Honey Producers' League.

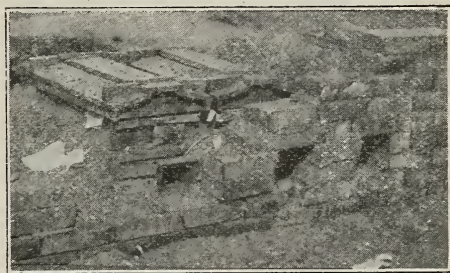
[While the bee journals can and should devote some space to the League, the amount of space available in this way is necessarily quite limited and entirely inadequate. In order to hold its membership, the League must have better contact with its individual

members. If the League can arrange to put out an annual report, as was done by the National Beekeepers' Association, publishing the papers submitted at the annual meetings, the small beekeeper would feel that he is getting value received for his membership fee in this annual report alone. The papers sent to Salt Lake City at the last meeting of the League should be published. The bee journals can not publish these papers because of lack of room. They would fill a good-sized annual report.—Editor.]

WINTER PACKING IN KOREA

A Winter Packing Case Made of Brick and Packed with Rice Chaff

One of my friends in Chosen (Korea), whose name is S. Mori, practices a convenient and economical method of packing for wintering of bees. Chosen is a very cold part of the earth, with a bad climate. The ground freezes about three or more feet deep in winter, and there are about four warm days after about three cold days in turn, as a rule. Hence, the bees are likely to winter very badly.



Winter packing case made of brick in far-away Korea.

Mr. Mori's plan is this: The outer case is built from common bricks, no cement material being used. The case, if it may be so called, is easily built up, and taken down in the spring. In the spring he makes a plain platform for hive-stands from the bricks taken down, so that no grass will grow, and he does not feel the need of a storage place for winter cases. Those bricks are to be used year after year.

The illustration shows the manner of building up the winter case. Mr. Mori uses rice chaff for packing. He makes the roof of rice-straw mat, which is used for the sack of rice in Japan. But he states that he will make the roofing from sheeted tin next year, because he found that the rice-straw mat will not stand so well against rain and melted snow in the spring months. He inserts pieces of used newspaper in the entrances to prevent the bees from coming out on warm days to be stricken down by the chill wind,

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keeping the entrances out of sunlight. He also puts a wire guard in every entrance so that mice (which are so abundant in Chosen) cannot enter and damage the contents of the hives.

Yasuo Hiratsuka.

Tara, Gifu-ken, Japan.

SELLING HONEY LOCALLY

Relation Between Prices to Producers, Retailers and Consumers in Various-sized Packages

Let us remember that the retail price to the consumer is the final criterion of sales and test of marketing efficiency. I think comb honey at 50 cents a section is out of reason and sure to cause a severe reaction. But I do not produce comb honey now and will confine this discussion to extracted.

To simplify things, let us divide the selling price per pound into two parts. First, the return for the honey alone, which we will call the base; second, the cost of containers and casing per pound. We notice that containers cost most where the most honey is produced, owing to long freight haul.

In this article wholesale pack means honey cased in 5-gallon cans, two to the case, and indicated by Csd 2-60.

Retail pack is cased 6 ten-pound tins, 12 five pound tins, and 12 (or 24) two and a half-pound tins to the case, indicated by Csd 6-10, Csd 12-5, Csd 12-2½, etc.

The cost of cans and cases for the wholesale pack (Csd 2-60) is one and a half to two cents per pound. For the retail pack, if made directly after extracting, the cost for containers and cases is two and a half to three cents per pound for Csd 6-10, Csd 12-5, Csd 24-2½, and about three and a quarter for Csd 12-2½. Let us say 3 cents per pound for the retail pack, and a little under 2 cents for wholesale. The difference is close to one cent.

Table of Prices to Producer, Retailer and Consumer.

Base.	Csd 2-60	Csd 12-5	Price to Retailer Csd 12-5	Retail Price Csd 12-5
4	6	7	8	11
6	8	9	10	13
8	10	11	12	16
10	12	13	14	18
12	14	15	16	20

The figures in the above table mean cents per pound. The first column shows base prices or what the producer gets. The second and third columns add the cost of containers and cases for wholesale and retail pack. The fourth column shows what I think a fair increase for retail pack to the local dealer, one cent per pound. Note that in addition the producer usually saves the cost of cases when selling locally. All these figures neglect small fractions, but I think

those in the fourth column are not in error by so much as half a cent.

What I am advocating is the sale of honey as a food commodity entirely outside the class of champagne, chorus girls and platinum jewelry. My personal belief is that the 12-2½ pack will eventually take the lead over the 12-5 at an increased cost of less than half a cent a pound.

Taking the country over, base 4 is too low to keep the business going. Base 6 is better than is now being realized by many large producers in the West. But base 8 can be reached if all try to use the local markets right. Base 10 is not too high proportionately to prices of fabricated commodities, nor likely to be so in the future.

The retail prices in column five for honey in 5-pound tins give the retailer 30 odd per cent, which he can shade for cash.

Taking up base 8 in detail suppose the producer sells the 12-2½ pack for \$3.60 to the retailer, and \$4.00 to individuals. He will not hurt the retailer, who can sell locally at 40 cents for the 2½-pound can, and not over 45 cents within the 100-mile range.

The cost to re-handlers of the crop shipped out on base 6 and base 8 with freight added will be 11 to 13 cents and very little will be sold them at base 10. The cost of glass jars and cases will add 7 to 10 cents for 1-pound and 6½-ounce glass packages. The price to grocers will run close to 30 cents, and the retail price 50 cents a pound and up. This last price could not be much less if producers supplied honey gratis (base zero).

Efficient marketing of honey demands, as I see it, that all who produce honey at base 7 to base 8 shall see that their 2½ and 5 pound cans are retailed within a hundred-mile radius at 15 to 16 cents a pound.

But this honey must be carefully strained when extracted, labeled with the producer's name and handled right all the way through. The honey should be as clear as if to be bottled. The extra cost is a small fraction of a cent per pound.

I am selling, this season, at base 7½. Local dealers sell my 2½-pound pack at 35 cents each. I do not expect to ship over the range at all, though my customers have done so. The notion of selling fair-sized tin packages to local customers and retailers at prices that approach the cost of bottled honey does not appeal to me as a business proposition.

I believe that if the base is placed at 8 the whole crop can be sold and a great new market opened, and the beauty of it, practically free of a railroad tariff that hurts the cheap syrups even worse yet. The thousand-mile-haul business is another story, as to which we should worry if we sell honey to our neighbors as we expect them to sell grain and potatoes and meat to us.

Laplata, N. M. Harrison H. Brown.

THE reports of the honey crop for 1922 say the crop is "spotty," i.e., good in some places and poor in others. In our county the crop is very good, while in the next county to the south, very poor. How can we account for this? Doubtless much depends on the soil and weather. It is very noticeable that our best seasons on clay soils are wet seasons, while the best seasons on light soils are those years that are considered dry. It was not surprising to learn this season that the crop was light where apiaries were located on light loam or gravelly soils.



SIFTINGS

J. E. Crane

* * *

That bulletin of the U. S. Department of Agriculture, No. 222, mentioned on first editorial page, I have found of great interest. I was especially surprised that the difference between the top and the bottom of the hives tested was but two degrees in most cases. I could not help wishing that the temperature of an insulated hive with a large and a small entrance could have been made, that we might know how much heat is lost in that way. If the Fahrenheit scale of temperature had been used instead of Centigrade, the tables would have been more readily understood by many of us plain beekeepers.

* * *

The market reports for the month of August do not indicate a large crop in the country as a whole, and, if the beekeepers are patient and willing to take the advice given in the September issue of Gleanings, there seems no good reason why we may not obtain very satisfactory prices. The greater abundance of honey, with lower prices, is bringing it into more general use. As its value as a food becomes better known, we need not worry about the future market. If we are not satisfied with the wholesale prices, it is every one's privilege to retail his crop for a higher price.

* * *

The advice given by E. R. Root, pages 575 and 576, on shipping comb honey, is both timely and important, especially for the inexperienced beekeeper. We have been using a crate holding only six cases, as eight cases make a crate pretty heavy to handle in loading and unloading into a truck or wagon and into and out of cars. Unless those who handle freight are more careful than their reputation calls for, I fear crates weighing 200 pounds would be mostly moved by station trucks. The only objection to the six-case crates is that it costs about 30 per cent more to use them. We use also many two-case crates to ship to those retail grocers who can use but a small amount at once.

The article by H. H. Root, page 568, on "Merchandising Honey," and another by E. G. LeStourgeon, page 573, on the "Marketing Problem," contain

many points and advice of great value about marketing honey. Mr. LeStourgeon says, "Honey has never been over-produced but has been under-distributed," which is undoubtedly true. It should be held as an everyday article of food rather than a luxury. If we compare the price with that of other articles of food, we shall find honey as cheap at the present time as any of them or at least the average of them.

* * *

It seems a pity for beekeepers to rush their product on to the early market at any price they may be able to get. Fifty years ago we did not think of selling honey before October. October and November were the honey months. Not until we began to get frosty weather was there much call for honey. Now there is more or less call for it the year round, the greatest demand coming during the cool months, as fruits are plentiful during the warm parts of the year.

* * *

One large producer told me last fall that he found his neighbor selling his crop of comb honey for five cents a pound, when he himself was trying to sell his for three or four times as much. I see no other way but for the larger and more intelligent producers to educate these "side line" beekeepers as best they can or buy them out.

* * *

I was surprised to learn (page 586) from Mrs. Boyden that the tomatoes were not ripening earlier in southern California than in Ohio. This means that the spring and early summer in that favored climate are no warmer than in the East.

* * *

I confess a feeling of envy when I read of the abundance and variety of fruits grown in southern California, as described by Mrs. Boyden; but I console myself by saying, "Life consisteth not in the abundance of the things one possesseth." We have enough here for our health. Surely, what more can one ask for?"

* * *

That is a capital idea of the extension service of Iowa to furnish better queens for the beekeepers of the state. I never before realized, as I have during last year, the value of gentle as well as productive bees—a yard where I can walk around among the hives without the slightest fear of a sting.

WHEN a man's work is in a city office and requires him to meet people and talk with them almost constantly during the day, while his wife's work is in the home where she meets almost no one during the same time, it is a problem to know how to spend their evenings in a way that will afford both of them rest and recreation. The natural inclination of the man is to spend his evenings very quietly at home. But his wife, after a busy morning at housework, a little rest in the afternoon, then dinner and the inevitable dishes, often feels an inclination to get away for a little while at least. Perhaps this is especially true of a woman who is 3000 miles away from her old friends and acquaintances in the East.

I don't know how other people solve this problem. Perhaps other women are contented to spend their evenings at home; but this is such an interesting world, especially here in southern California, and life is very short. We compromise. About once a week the children and I attend a show, leaving the busy man to keep house alone for a little while. He claims he enjoys it. Other evenings we try to return calls which were made on both of us, and we frequently drive for short distances. When a man has to drive eighteen or more miles a day going to and from his office, naturally he is not keen on much driving for recreation. Some evenings we all spend quietly at home.

But one of the most delightful compromises, in my favor, was when the busy man took his family to a symphony concert in the Hollywood Bowl. It was dark when we reached Hollywood, which is some twelve miles from the suburb where we live, and we were directed to take a road which led straight up toward the mountains back of the town. But, like all such roads, instead of coming up against the base of the mountains the latter seemed to open and reveal a canyon road, up which we climbed until a sudden sharp turn up a steeper grade brought us into the great natural amphitheater which is the "Bowl." A young man with tickets and parking tickets appeared at the side of the machine, other young men at intervals directed us where to go, and presently we left the car and climbed to seats arranged in an enormous semicircle up the sides of the Bowl. The large, open front stage seemed rather distant, and I was afraid the music would be somewhat faint. But it was beautiful; the softest, sweetest notes of a solo violin were distinct, and the music as a whole sounded as fine as anything of the kind I have ever heard indoors. And the men of the party, who climbed to the highest seats during an intermission, said

OUR CALIFORNIA LETTER

CONSTANCE ROOT BOYDEN
(Stacey Puerden)

the effect was even finer up there, although they were far away up the great hillside.

During the numbers the few lights were turned off, except on

the stage. Facing the north we could see the Big Dipper and North Star, and early in the evening, the four great planets which make this summer's sky so interesting; but Jupiter, Saturn and Venus soon sank behind the western ridge. High on a hill to the east blazed a great white cross, marking a neighboring canyon in which the Pilgrimage Play is being given nightly. That play, you may know, is on the life of Christ, our American Oberammergau.

The great audience listening to the symphony orchestra was perfectly quiet and orderly, so quiet that all the little night sounds, crickets, etc., could plainly be heard near us when the orchestra was playing softly. Fortunately the noisy, night-singing mocking birds have subsided for the season. Anyone who "views with alarm" the tendency of this generation toward fast living and "jazz" should be comforted by a visit to a symphony concert in the Hollywood Bowl, for it was plain to see that the large audience, among whom were many young people, enthusiastically enjoyed the good music. And one of the fine features of these concerts is the fact that the price of them is so moderate that they are within the reach of anyone who can afford a picture show.

Some time I hope there will be a compromise which will take us to the Pilgrimage Play. One of the charms of "My California" is its climate, which permits an audience to enjoy concerts, plays and grand opera in God's out-of-doors. It is true, summer evenings in the East are plenty warm enough for out-of-door functions, but the possibility of rain makes it hazardous to risk money on such enterprises, a possibility which does not have to be taken into account here.

Next time we attend an out-of-door concert, however, we are going with plenty of warm wraps. It had been a warm day, and most of our party carelessly started out with light coats and shivered throughout the evening in consequence. With warmer coats we should have been perfectly comfortable.

ONE warm August day the busy man had to go on a long motor trip to visit a number of apiaries, and just a little while before it was time to start he announced that I was going along. To tell the truth, I was not so eager for the trip as I might have been if the sun had seemed a little more merciful; but, having said so much about wanting to see more of the country, I couldn't well refuse.

A nice gentleman with a comfortable car picked me up here at home, drove clear down to the city for the busy man, who had gone to the office for two or three hours' work, drove across the city to Hollywood to pick up another interested man, then on through Eagle Rock City to Altadena where we stopped at an apiary to ascertain what its inhabitants thought of aluminum honeycomb. I did not participate in the intrusion into the private habitations of the bees, nor did the supposedly interested gentleman we picked up in Hollywood. Instead he stole a couple of peaches (at least, I did not see him pay for them), presented me with one and retired behind the trunk of a large eucalyptus tree to enjoy his peach and permit me to do the same with my share of the stolen goods.

A California peach, unless peeled and sliced in a plate and eaten with a fork, should be enjoyed in private, for it is the largest, juiciest and finest-flavored article of the name I have ever eaten. And don't jump to the conclusion that the juice is a product of copious irrigation, for I believe the latest way is not to irrigate such fruits, but to depend upon cultivation to conserve the moisture of the soil. Although I have lived near the peach belt of Lake Erie all my life heretofore, I must admit that I never realized how fine a peach could be until this summer in California. Our peach tree, within a few feet of me where I am writing, is so loaded with luscious fruit that in spite of many stout props it resembles a weeping willow. And I just stepped over to it, selected a great red-cheeked, golden peach, washed it and ate it, and it was even finer than the stolen Altadena peach. That peach tree is conspiring with the nectarine tree near it to give me many warm hours of canning, for their fruits are ripening together.

Speaking of California fruits, not even a glowing seed catalog description could do justice to the cantaloupes, Casabas and honeydew melons.

To be strictly honest and to prove that I am unprejudiced, let me confess that I do not think such grapes as the Delaware, Niagara, Concord and Catawba are quite as large and fine here as in the East, although they are very good. And tomatoes are a disappointment. Having read that tomatoes are a tropical vegetable, I supposed they would do wonders in this so-called semitropical state. What was my surprise, therefore, to find that tomatoes have developed temperament in this locality. They blight on the slightest provocation, they run to leaves if you irrigate them, and sulk and bear small tomatoes if you don't. It isn't strange that the price of tomatoes continues ridiculously high for the time of year.

To return to Altadena, when I had finished the peach I washed my juicy fingers in a trough where some young Thanksgiving diners were drinking, joined the other members of the party who had finished their in-

vestigations and we drove on down to Pasadena for lunch.

After lunch we drove over Devil's Gate dam through Flintridge to La Canada Valley through to Sunland and across the desert country beyond where one has a fine view of the gorgeously colored mountains. On our way to San Fernando we passed a large commercial rose farm with its thousands of blooming roses, two great reservoirs in which the Los Angeles city water is stored, saw the large aqueducts and the open aqueduct in which the water is aerated as it pours down over a hill, and passed the largest olive ranch in the world. Then we went on through Newhall tunnel into a hot, largely desert valley to Saugus and beyond to the Mint Canyon road. It always impresses me with the foresight of the Californians to ride over such perfect roads as cross these desert valleys.

We stopped at the homes of several beekeepers. Don't expect me to tell you about what our party found in reference to the aluminum combs, for I should speedily get beyond my depth; but I believe they found these particular bees gracefully accepting the short cut and their keepers well satisfied.

Those hot valleys, cut off from the cooling ocean breezes by mountain ranges, are interesting and full of possibilities for those who can stand the climate; but the country around Los Angeles never looked more beautiful to us than when we finally came back to it with its green trees, its many blossoming trees (the trees of July with their blue violet-like blossoms are gone, but there are many other trees with bright blossoms now), its flowers and fruits, beautiful homes and cool ocean breezes. It is true we have our hot days, and perhaps I shouldn't mention it, but we did have four or five warm nights in succession, regular corn-growing nights. But any old Californian will tell you that those nights were very, very unusual; in fact, it almost never happened before, and between you and me, there is one eight months' old Californian who hopes it will never happen again. But the warm nights of this summer have been so few that we may call them the exception that proves the rule.

Little Coconut Cakes.

1/4 cup margarin or butter or a mixture of both	About 1 1/2 cups sifted pastry flour
1 cup granulated sugar	3 teaspoons baking powder
2 eggs	1 1/2 teaspoon salt
Milk	1 teaspoon vanilla

Measure the margarin by filling a measuring cup 3/4 full of water and adding the margarin until full. Cream the margarin and sugar until smooth. Break the eggs in a measuring cup, break up with a fork and add milk until the cup is full. Then add to the first mixture a little of the egg and milk mixture and a little of the flour, beat until smooth and repeat until all of both are used. Add flavor and beat vigorously for one minute and bake in 20 small muffin pans which have been well greased and lightly dusted with flour. They should bake in 10 to 15 minutes. Cover with steamed frosting sprinkled liberally with coconut.

IT was in December, 1919, that I asked a question in Gleanings that no one answered. I had become enamored of the old English 18th century scholar and naturalist, Gilbert White, of Selborne, who in one of his letters refutes the assertion of Vergil—"a strange notion," as he scornfully calls it—that echoes are harmful to bees; and, in partial support of his own position, affirms that "bees, in good summers, thrive well in my outlet, where the echoes are very strong." Which established him as a sideline beekeeper, and landed him squarely in this department, where, in his very own words, we caught that delightful picture of the lovable old Oxford scholar testing the hearing of his own bees "with a large speaking-trumpet, held close to their hives, and with such an exertion of voice as would have halled a ship at the distance of a mile!"

My own enthusiastic interest was by no means limited to his few references to bees, but responded—whose would not?—to the whole range of his countless rich notes, charming comments and wealth of quiet incidents, with the conclusions that "a person with a thinking turn of mind" might derive therefrom. Everything that came and went in the parish of Selborne was observed by his quick eye and set down in his letters, so quaint in the antique manner of his gracefully formal style. Through these letters one sees and hears the coming of the English birds—swallows and swifts and martins and starlings, the cuckoo and the curlew and the "tame brown owl," the larks and nightingales and a host of lovely others; there are trees, elms and great oaks, pollard-ash and "wych hazel," "Portugal laurels and American junipers"; there are rocks and lizards, gipsies and echoes and wonderful cobwebs, frosts and storms and "the rushing and roaring of the hail"; there are simple pictures, such as the one of good Queen Anne, stopping "as she was journeying on the Portsmouth Road . . . and reposing herself on a bank smoothed for the purpose . . . still called Queen's-bank," to view a great herd of 500 red deer, "brought by the keepers along the vale before her." It is the kind of book one browses through, lingeringly, nibbling delicious bits all along the way.

But the only letters I quoted from in Gleanings were two containing references to bees. One of these, copied entire, was about an idiot boy whose life in winter was passed in almost complete lethargy by his father's fireside, but who in summer waked up, as it were, and became keenly interested in bees. A strange, distorted interest it was, of course—poor boy—manifesting itself in va-

Beekkeeping as a Side Line

Grace Allen

rious abnormal ways: seizing them bare-handed (*nudis manibus*, says the old Latin scholar) and sucking their bodies for the sake of the honey sac; putting

them in bottles or even inside his own clothes; slipping into apiaries and there sitting down in front of hives to tap with his fingers and catch the bees as they came out; even turning the hives over, sometimes, to get the honey; his lips making a humming noise like a bee as he ran about.

Toward the end of the letter, before the concluding statement of the boy's death before maturity, White says, in effect, that if the poor little bee lover had been smart, he might have been as great a beekeeper as any of the moderns who made people wonder at their feats with bees. (But O the old fashioned saying of it that was his!) And he ended thus: "and we may justly say of him now,

. . . . "Thou,
Had'st presiding star propitious shone,
Should'st Wildman be."

In spite of the painfully unmusical combination, *propitious shone* (especially followed by *should'st*), these lines interested me greatly; the thing that puzzled me chiefly that uninformed day when I copied the letter for Gleanings was—who was Wildman? Then, too, from what poem or poet was the extract quoted? So I asked if anyone could enlighten me as to those lines. No one did. Now I can answer part of my own question. Though I don't yet know where the extract comes from—White himself quotes it. Who first wrote those words, I wonder, and to whom?

In a very modern manilla envelope, postmarked in a very modern city, there comes to me occasionally—and by the same token must come to other lovers of bees and books—a list of old bee books. "Old-Time Bee Books—Rare and Interesting," reads the too alluring heading. The authors' names run alphabetically, from Adair to Worlidge. Third and fourth from the last are two Wildmans, Daniel and Thomas. They were contemporaries of White's. They published in London, and perhaps lived near there, while Selborne was only 50 miles away. The Selborne naturalist may have known them personally; at least, he must have known their books and somewhat of their work and rank. So I feel sure that I understand the name Wildman in the lines that Gilbert White quoted in 1775 to his friend the Honorable Daines Barrington, in his letter about the poor bee-loving idiot boy.

The first edition of Thomas Wildman's book, "A Treatise on the Management of Bees," was published in London in 1768.

The particular copy offered in the modern list of Old-Time Bee Books bears the bookplate of John Phin—which starts our wonder again as to Mr. Phin! Was he a lover of books or a lover of bees? Was he—ah, what mightn't he have been! Anyway he had a library with a book in it about bees—he must have been something very likable.

The 12th edition of Daniel Wildman's work, "A Complete Guide for the Management of Bees Throughout the Year," was published in London in 1792 (the year Gilbert White died); bound in one volume with "Hints for Promoting a Bee Society." I do wonder if they promoted it! And had conventions! And field meets! And short courses! The particular copy listed has the book-label of—mark you—Bernard Edward, Duke of Norfolk, a lover, perhaps, of both books and bees. Surely his library was oak-panelled, the halls leading to it were hung with portraits of ancestral dukes and duchesses in ruffs and powdered wigs; and somewhere among the hedgerows and climbing roses of his Park were picturesque bee skeps—perhaps with primroses and English may blooming near, or the hawthorn dashing dew over them from its white blossom sprays. And he had Wildman's book on bees in his ducal library.

Ah, the poor idiot boy, who under a luckier star, more propitious in its shining, might have been a very Wildman!—with his Treatise on Bees, or his Guide to their Management listed in later centuries among Old-Time Bee Books—Rare and Interesting!—casting a glamour over dead unknown men merely because their bookplates were on the inner covers!

That List.

It is a thing of fascination, a thing of great temptation. How can one be a lover of "The Amenities of Book Collecting," without harboring the secret longing to do some wee bit collecting oneself? Then here comes this especial list, sent direct into one's hands, to lie day after day on one's red-topped writing table, finally pushed sternly out of sight under a heap of unanswered letters, so that it may not be found for a long, long time, perhaps never. But because one never forgets where he hides a thing from himself, it is forever getting itself pushed out in plain sight, to tease and tempt, yet somehow never to land in the waste-paper basket, as it ought.

Yes, surely that Bernard Edward, Duke of Norfolk, must have been a lover of bees as well as of books, for that famous old book, "The Feminine Monarchie; Or, The Historie of Bees," by Charles Butler, 1623, bears this same book-label. Ah, that must be the great book. Do you remember how the Beekeeper's Wife (Gleanings, 1917) wrote about it in one of those letters that we all enjoyed the more because we knew who wrote them? Some day maybe I'll go visiting Rob's library there in—you know where—and beg the loan of his copy for an hour or so, to read its quaint old pages for

myself. "In a word, thou must be chaste, cleanly, sweet, sober, quiet and familiar so they will love thee, and know thee from all others."

Then there is "Systema Agriculturae"—with a section devoted to bees, 1681—with a bookplate of Sir Something or Other. Can't you just see the scholarly Worlidge writing it all down with his quill pen? And there's Moses Rusden's "A Further Discovery of Bees," 1679. "Rob" has Moses Rusden, "Bee-Maffer to the King's most excellent Majefty." He is that away-before-his-time beekeeper, who denied so many "falfe proverbial fayings about bees. There are a dozen or more printed in the 17-hundreds—that sounds further back than the 18th century, doesn't it?—besides those by the Wildmans. The very titles are aluring—"The True Amazons"—"The Female Monarchy"—"A Theatre of Political Flying Insects"—"The Compleat Bee-Master"—"The Antient Bee Master's Farewell." No, I am not advertising them, I am only enjoying them by the title method. And I am folding the list away, putting it back under the pile of unanswered letters that it may not tempt me again for a long, long time. And I am putting away, too, "The Natural History of Selborne," in its place in the bookcase, between "The Republic" of Plato and "The Fall of the Nibelungs." For even more enthralling than any list could be are the glowing pages of a real book—a live book—albeit a gentle mild one, like Gilbert's White's. Which is why it takes so long for some of us to verify quotations, or turn an idle page, or dust books. Did you ever try dusting them? Don't, if you would make an early end to your dusting.

It Will Not Do.

When some swift day piles task on task
And, bowing, hands them all to you.
Who did not ask
Nor in the least desire the gift—
It will not do
To let your littlest finger lift
One page of the one old book, on fire
With noble charm or high desire—
It will not do.
(Ah me, how sadly well I know
It will not do!)

For when sorcery has bound you,
Helpless, where the first page found you,
And you drift beneath old magic
Down the beauty-haunted hours
Of woven spells and ancient powers—
Ah, the end it is so tragic!

For every task in every pile
At last will squirm and raise its head
And smile a demon sort of smile
That fills your soul with sudden dread—
And tightens something round your heart,
Something sick and cold,
And tears your conscience all apart
And makes you feel all tired and old,
And freezes all your hot replies
By looking at you with its eyes,
Horrid eyes that mock at you—
Ah no!—it will not do!



FROM NORTH, EAST, WEST AND SOUTH



In Southern California.—Honey has been moving quite freely since my last letter was written. The orange honey has been bringing nine cents, white sage eight cents, and the darker grades as low as six cents. At the present writing (Sept. 4) buyers are not anxious to buy, as the shipping conditions are so unsatisfactory that it makes it very uncertain as to how long their money will be tied up in the transaction. Few, if any, are buying for speculation, and unless they have orders or are reasonably sure of moving the honey on to the market in a short time, they do not care to buy excepting at a very attractive price. A few beekeepers are holding with hopes of better prices later, but most of them are ready to sell when the crop is ready, being satisfied to let the other fellow do the speculating.

When I read the editorial on page 507 of the August Gleanings on "Inferior Stock Reduces Value of Comb Honey," I could not help but wonder if the same would not apply to extracted honey. The word "value," however, would be applied to the quantity rather than to the quality of the honey. The propolizing tendency applies more generally to both than is at first supposed. Especially is this true if the capping melter is used. This colored material when heated has quite a tendency to discolor the honey with which it comes in contact. Hustlers, of course, we want in either case. Comb-builders, whether their product is white or watery, do not interest us who produce extracted honey, just as long as they keep busy capping. Finishing is also of minor consequence, as 75 per cent of the comb is all that is necessary to be capped. Travel-stains we do not like; but, if the honey is taken off when it should be, little or no trouble will come from that source.

Most beekeepers have made some increase. We all like to have enough new colonies at the close of the season to make it reasonably sure that we shall come through the winter with enough colonies to "keep our numbers good," as the beekeepers say. Many decoys have been set out this year, but the swarming has not been so general as in some seasons. Consequently, many boxes are still vacant.

Queens can be raised and increase made quite late in southern California. Opinions differ as to the value of fall or spring increase. If you have plenty of stores, it might be well to make some increase yet this fall. I have had very good results as late as November, and queens have been known to mate every month in the year in southern California.

It is well to get all combs and wax taken care of, as the wax moth is a busy fellow during the fall months and, if given a

chance, will soon destroy many dollars worth of valuable material.

These items are being written at Idyllwild, a mountain resort 5,000 feet up on the slopes of Mt. San Jacinto, where I have just erected a mountain cabin. The Andrews expect to spend many vacations here, and hope that their friends will always find that the "latch string hangs outside the door." Yesterday we enjoyed a hike to the lookout on top of Tahquitz Peak, at an elevation of 9,000 feet. There is an old Indian tradition that says that this mountain always gives out rumbling noises before there is to be an earthquake. Quite a number of earthquakes have occurred in this section since the memory of man, and perhaps more will occur in the future. Little or no thought is given to them, and in many cases they are looked upon as an experience to be proud of rather than to be regretted. Some property damage has resulted in the past, but scarcely any loss of life has occurred.

People who have never enjoyed the view to be seen from one of these mountain tops little realize just what it is. As I turned from point to point of the compass, I could see the great Pacific Ocean, Catalina Island, Los Angeles, Mount Wilson, Mount San Geronia and Salton Sea, with the numerous valleys and cities lying between.

I have observed bees around the cabin and will try to locate them some day, as I can hear of none being kept around the settlement.

L. L. Andrews.

Corona, Cal.

* * *

In Arizona.—The summer season in southern Arizona has not been a favorable one for honey production. Following a spring season which seems to have been very variable in the different valleys of the state, the summer seems to have been uniformly poor. Although the July and August rains have been about normal, mesquite has almost wholly failed to bloom again. In fact, the number of trees that may be seen with even a few blossoms is so small as to mean nothing to the beekeeper, while in covering perhaps 100 miles of country roads I have seen just one mesquite bearing sufficient bloom to be conspicuous. Of other flowers from which the bees may so much as draw a living, there are practically none.

Occasional areas of alkali weed are in luxuriant bloom. This provides a surplus of dark, poorly flavored honey for the colonies which may chance to be located near by, useless for commercial purposes but valuable for winter stores. This plant grows densely in favorable areas but is wholly lacking in large areas, so not all apiaries will benefit by it.

Those beekeepers who are located so as to



FROM NORTH, EAST, WEST AND SOUTH



draw upon such cultivated crops as alfalfa and cotton are reported as securing light to fair crops, cotton especially not yielding as well as usual. In addition to this, the cotton acreage has been greatly reduced as compared with two and three years ago. The entire honey crop for this year in this region, judging from reports reaching me, will hardly reach 75 per cent of normal, and may be even much less than that.

I have been fortunate enough to have an opportunity to locate a few colonies near a considerable acreage (20 acres) of Hubam clover this summer. This is the first sowing of this plant on a commercial scale in the Tucson region, if not the first in the whole of southern Arizona. A fair surplus is being secured, though not so much as was anticipated.

Chas. T. Vorhies.

Tucson, Ariz.

* * *

In Colorado.—Colorado has a crop about the average in most sections, except a few places where hail destroyed the alfalfa and sweet clover blossoms. The first main flow came on early and heavy. Some beekeepers were not prepared to gather this crop, and lost some honey that way. The farmers were rushed and so did not cut the hay as early as usual, and this helped the beekeepers. The second and third flows were not very good, the greatest part of the crop coming during the first flow.

There seems to be considerable price-cutting among some of the large beekeepers as well as the small ones. Honey is retailing in some sections at a wholesale price, and in others at wholesale prices plus price of the container, and then beekeepers wonder why the wholesale price is not better. Some are offering No. 1 comb at prices that are much less than it cost to produce. However, all beekeepers do not do that. As an example, we have one man that sells his entire crop at a good retail price by investing a little money in advertising and putting up a good article in a neat package.

This year we tried out some demonstration apiaries as an experiment, which gave good results. Next year we hope to put in more of these.

We have had some European foul brood this season in the Arkansas Valley. This was shipped in from another state. However, I feel it can be easily controlled in the alfalfa region.

Newton Boggs.

Ft. Collins, Colo.

* * *

In Indiana.—With an all-summer drought, broken only by a few local showers, the crop of clover honey in northwestern Indiana probably will be less than 50 per cent of normal. In July and the forepart of August strong colonies

consumed large quantities of honey already stored, and, where extracting had been done, some were found to be in a starving condition. In low places and along marshes there is a considerable amount of heartease and goldenrod. In fact, bees along the Kankakee and Calumet river bottoms are doing exceptionally well, and the fall crop apparently will be above normal.

Honey is moving very much more slowly than is usual at this time of the year. It probably is due to warm weather, strike conditions and to the great abundance of fruit of all kinds. More honey is produced hereabouts than can be disposed of locally. Most of it is amber in color, and at present prices it does not pay to ship to wholesale markets. Some means must be found to increase sales, or producers must necessarily curtail production.

About 20 or more Federal Board students at Valparaiso University are taking a course in beekeeping. These students come from various parts of the United States. C. J. Borum is in charge of the beekeeping work.

Valparaiso, Ind.

E. S. Miller.

* * *

In Iowa.—We are having intensely hot and dry weather at this writing (August 6) and while the bees are doing fairly well under these conditions, it will not last long if we do not get rain. Our main fall flow is from heartsease, which, although yielding immensely under favorable conditions, cannot stand these hot days long without rain.

Beekeepers should take warning that an unusual condition of the colonies exists this fall, and they should keep a close watch on the brood-nests or many colonies will go into winter quarters with little or no stores.

We have had a very light flow all through August. In fact, there has been no time since the main clover flow was over that the bees did not get a little nectar from the fields, just enough to stimulate brood-rearing; and all through August the brood-nests were bare of honey, but brood in almost every frame. Never did I see the brood-nests so full of brood at the beginning of the fall honey flow. With these conditions it is hardly possible for much honey to be stored for winter stores; as with the fall flow now on the queens are more than likely to continue to lay, perhaps more rapidly because the flow is better, and it is probable that when the flow is over an empty brood-nest will be the result. It is a condition one does not like; however, it means plenty of young bees for winter, which is one thing decidedly in its favor.

Comb-honey producers do not usually have to worry much about colonies being short of stores, but in the colonies we run for comb the same conditions are present. Our



FROM NORTH, EAST, WEST AND SOUTH



comb-honey colonies are in eight-frame hives and have eight frames of brood; so better keep a close watch on all colonies. Hunt up the feeders, and see that there are no leaky ones unless you have plenty of full combs. A writer of my acquaintance once said that cigarets and an automobile are two good things for a boy to raise the devil with, and he might have added a leaky feeder.

The bees are in good condition so far as strength is concerned, and all they will need is to make sure of plenty of stores of good quality with the proper protection.

Center Junction, Ia. W. S. Pangburn.

* * *

In Alabama.—The season just passed has been the worst all around of any that we have had for many years. The weather in January and February was so warm that the bees consumed enormous quantities of stores, causing a shortage of package bees. The colonies were more or less run down at the beginning of the honey flow.

During the early part of the honey flow there was rain every day, but on June 4 it quit raining and turned so hot and dry that the nectar dried up in the flowers. Some bees will need feeding for winter.

The annual convention of the Alabama Beekeepers' Association was held in Montgomery on August 23; officers were elected and an interesting program rendered. A reward of \$50.00 was offered by the association for the arrest and conviction of anyone stealing bees from the members of the association.

The fall flow seems to be the best of the year, as the bees are working fine every morning, making conditions better for requeening than in most years.

Montgomery, Ala. J. M. Cutts.

* * *

In Ontario.—No report from Ontario in last issue of *Gleanings* does not necessarily mean that there has been nothing doing in beekeeping in that province worth reporting. But it does mean that the writer of these notes has, in common with scores of other beekeepers, been very, very busy. While many parts of the province have been blessed with good crops of honey, other factors that have come into prominence during the past few years have made the honey season a more strenuous one than usual, aside from the matter of the size of the crop. Chief among these factors here in our home section is the growing of sweet clover. Formerly, when alsike clover was our only source of white honey, the honey flow would be over by about July 10 or 20 at the latest, and we had ample time, by hustling a bit, to get the white honey off before buckwheat came in. Now, with sweet clover following the close of the al-

sike honey flow, there is no let-up, and the white honey flow merges right in with the buckwheat honey flow. This season by using a large number of escape-boards we were able to keep some 20,000 pounds of clover honey from getting mixed with buckwheat; but it meant a tremendous amount of work, and this work had to be done in a hurry. While we lost quite a lot of buckwheat honey by colonies becoming jammed before we could get the clover honey off and sufficient empty supers given; yet in the end we gained a good deal by this manipulation, since it was a case of handling less honey for more money. A few thousand pounds of buckwheat honey were better lost than to have ten tons of clover classed as buckwheat, and then get a little more buckwheat.

This is the third year that sufficient sweet clover has been grown in our locality to mean anything, one way or another, to the commercial beekeepers. During two seasons of the three it has yielded honey freely, while in the other year it yielded very little. The year of failure was hot and rather dry, while the years of plenty were cool and wet during the time of the honey flow. Sweet clover will yield best in comparatively cool and damp weather, when under similar weather conditions alsike will not yield at all. On the other hand, alsike will yield well in hot dry weather when sweet clover will yield little if any nectar. With the two clovers in the same section, one is almost sure of a fair yield from each or both, and that is the only redeeming feature, as I see it, in the growing of sweet clover in a section like ours; for, as more than once stated in these columns, alsike clover will not be grown for seed for a number of years on ground that has produced sweet clover seed. But the boom of sweet clover is already waning in our locality, and, aside from growing it for pasture, I do not think we shall long have this plant as a honey plant in our immediate vicinity.

While, as already stated, Ontario has a nice crop of honey, yet the size of the crop does not justify the panicky condition that many beekeepers have been stricken with, and as a consequence have thrown their honey on the market at any price almost that the buyer would pay for it. Unscrupulous dealers have taken full advantage of this attitude, and today the market in some centers is paralyzed, so far as making large sales is concerned. The great abundance of all kinds of fruit has been a factor in slowing up local sales of honey, and there is no question but that conditions will be better after this surplus of fruit is disposed of. Tender fruit must be sold at once—honey will keep, and that is one thing in favor of our product as compared with many other lines.

Many beekeepers who recently started in



FROM NORTH, EAST, WEST AND SOUTH



the business have no regular markets worked up for their product, but during the past few years this was not noticed so much when honey could be sold almost anywhere and almost at any fair figure asked. This year it is different, and honey has been "dumped" freely. But it is not only the new men in the game that have done this. I am creditably informed of at least one extensive producer who has been delivering all over the country by truck, at a price less by two cents than many of us sold for in carlots. However, the present state of affairs may work out all right in the end, for although much work has been done by our association in buying supplies nothing has been done in the matter of selling the crop co-operatively. This may be a means of drawing the producers together so that, when the crop is good, it may be intelligently distributed instead of having large lots dumped at some centers while others go bare, as is the case today.

Buckwheat has given a larger surplus than usual, at least in some localities. In two of our beekeeping centers there is no buckwheat, but here at home there is a large acreage and the crop has been good. Bees are in good condition for winter as to population, but much feeding will have to be done since the brood-chambers are none too heavy. Alsike prospects are good for another year, as the spring "catch" is good and the new clover is blooming in stubble fields.

J. L. Byer.

Markham, Ont.

* * *

In Idaho.—The season of 1922 will be remembered as one of extremes, in the territory covered by the Idaho-Oregon Honey Producers' Association, for, even in localities not many miles apart, conditions have varied to an unusual degree.

During the spring-breeding period conditions were generally quite favorable; but when June came with its alfalfa bloom, supplemented by the various clovers, in some of our ranges in some localities bees made a bare living if that, though there seemed to be a fair flow of nectar, which proved to be mostly water.

Naturally, in the ranges where little or no surplus was secured, there was practically no swarming except with occasional supersedure colonies; while in other districts, not 40 miles away, there was a good flow of nectar, with universal preparation for swarming. To such an extent did this swarming fever extend that not nearly so large a crop was harvested from the June flow as might have been taken, if the colonies had early abandoned swarming. Demareeing in the usual way only aggravated the difficulty, if the beekeeper did not arrive for the next examination before the

possibility of young queens emerging in the brood placed above the excluder.

[Was the brood placed immediately above the excluder or on top of the supers? In the East there is apparently no trouble from swarming when the young queens emerge, provided there are at least two standard-depth supers between the brood-chamber below and the brood raised above.—Editor.]

In this connection, it seems that more of our own producers are planning a more or less complete abandonment of orthodox Demareeing and other methods of raising brood above excluders, and falling back on the establishment and maintaining of a single brood-chamber for each colony. After June it is rare for colonies in our ranges to swarm, no matter how good the honey flow, and if cells are destroyed in a single-story brood-chamber there is less labor expended than with most of the other plans, and no more swarming. Where there may be a later flow, as from our second crop of alfalfa, such queens, held down to a single story, probably "hold up" in their laying better than would be the case if they had been permitted almost to exhaust their fertility by laying freely in two or more stories.

With the coming of the honey flow from the second crop of alfalfa, again conditions varied exceedingly. In our own apiaries, none of them over 15 miles from home, there was not a day when bees would not rob if given the opportunity. At no time was the honey flow heavy, though the best colonies gave a very good account of themselves.

Nuclei, even though helped with frames of emerging brood, were slow to build up. Demareed colonies did not fill the lower story with brood; but, after the bees had all emerged from the brood placed above the excluder in June, they dwindled down and were in very unsatisfactory condition. In other districts there were a few days of very heavy honey flow, and quite generally cans and cases were ordered far in excess of the actual need.

Quite generally little or no increase was made. With the prices for honey prevailing for the past two years and continuing high prices of most of our needs, there is no incentive for increasing our investment in bees, as it is apparent that only those who operate so few bees as to do nearly all their own work are finding the business remunerative.

Market conditions remain unsatisfactory, with few sales, though fortunately there is but little old honey remaining unsold.

Colonies, so far as reported, are quite generally going into winter in good condition, though the later light flows have been disappointing. It may be, with our usual warm days and cool nights prevailing for weeks at a time, that stores will be very seriously depleted, especially since not five per cent



FROM NORTH, EAST, WEST AND SOUTH



of the colonies in the district will be packed for winter, owing to the high cost of protection and the uncertainty of the benefits accruing. E. F. Atwater.

Meridian, Idaho.

* * *

In Porto Rico.—Having just returned from a couple of trips to my out-apiaries, some of the conditions I found may be interesting to the northern beekeeper. I have mentioned before some of the very unusual conditions one meets with in this small island less than 100 miles long by 30 broad, containing only some 3,600 square miles of territory. The north side of the island is green with thrifty vegetation. This condition continues past Aibonito where I started and for about 4 miles beyond, which is the top of the divide. From there one starts down the southern side. From this point there is a drop of 1,500 feet in about 5 miles of road. There is a double figure "S" curve and several singles in this stretch of road. Many people become car-sick when traveling this hill country, on account of the turns and twists. For instance, there are 21 turns in one-half mile of road just beyond my home, one of these being a hairpin curve. This is not at all unusual. From the divide for a distance of 25 miles the contour of the country presents a dry, burned-up appearance, the ground being bare of growing vegetation, with the exception of trees and large shrubs. Hardly a blade of green grass is to be seen. Many of the trees have shed their leaves like winter conditions in the North. I later reached the irrigated lands of the coast where all was green again.

A week later I made this same trip to the town of Ponce, and, as there had been a fair rainfall three days before, the dry, arid look had passed, and all over the hills and valleys there was a discernible sheen of green of the new grass growing with wonderful rapidity. This revival of life, or the start of new life, is even a more wonderful demonstration of creation than any of our northern springs. It takes on more the character of a miracle, as it occurs in so short a time.

As the road I was to take from Ponce was impassable for an auto, I took a horse. When I reached the apiary an hour later, I was pleased to find honey coming in, and the stronger hives already storing in the supers.

To reach my apiaries near the western coast I took the train from Ponce to Aguadilla, and from that town by auto a distance of 10 miles. Located along this road I have three apiaries, which are cared for by a native worker. However, it takes close inspection trips to get anything accomplished. All peoples native to the tropics are blessed from their point of view (but condemned by the northern idea) by the habit of "manana," which means tomorrow. All things can be accomplished "manana." In these apiaries I found no honey coming in, but a prospect of a good honey flow three or four weeks distant. This latter trip occupied four days, as there was so much delay in making connections.

It is expected that there will be a slightly heavier yield of honey in Porto Rico this year than was gathered in 1921.

Aibonito, Porto Rico. Penn G. Snyder.



Field meeting New Jersey State Beekeepers' Association. E. G. Carr, Secretary, speaking.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Three Wintering Commandments. I live only 10 miles from the late Dr. Miller's home, Marengo, Ill., and have the same conditions for beekeeping that he had, although I find I have better results (so far at least) in wintering by outdoor wintering, with good packing and plenty of stores, than he did in the cellar. I find that brood-rearing begins two or three weeks earlier than in cellar-wintering, and I have the colonies strong in two stories when the white clover honey flow opens about June first.

As I see the situation, there are just three essential things to abide by, namely: Plenty of winter stores, not less than one and one-half stories; a good young queen, preferably introduced after the main flow of June-July; good packing put on early and left on until the latter part of April or the first of May. I wintered 100 per cent of my bees the past winter while nearly all the other bees in this locality died from want of the above-mentioned essentials.

Woodstock, Ill. George A. Turner.

Apiary Rid of American Foul Brood. In June Gleanings I see H. L. McMurphy says that no one has ever, to his knowledge, been able to free his apiary of American foul brood. Last year I found this disease in four colonies very late in the season. I was running for extracted honey and had over 100 combs infected or that had been exposed to infection. I shook the bees on to full sheets of foundation, destroyed more than 100 combs by melting and scorched all hives and supers with a gas jet. I put the frames into the oven of the cookstove and heated them until they were ready to blaze. This warped them somewhat, but I lost only a few. As it was quite late in the season I fed thin syrup several weeks, and in October gave each colony about 25 pounds of thick syrup. All came through the winter in good condition. I sent 10 hives to Florida and filled them last February with bees driven from box hives and swarms. To this date the disease has not reappeared here or in Florida. I guess success was due to the severe burning given to the hives and frames. The melted combs furnished about 30 pounds of wax.

South Jacksonville, Fla. O. Bromfield.

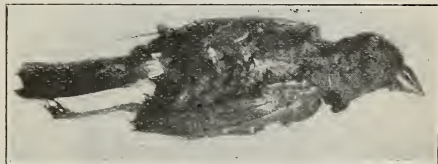
Wedge to Avoid Crushing Bees. The careful handling of bees, so as to avoid killing or irritating them, has long been my "hobby," and I have given this matter much study and thought. I have watched some who call themselves expert beemen, but who seem to care little how many bees they smash, so long as they "go through" a lot of hives quickly. When I re-

place a super or upper story on a very full hive, I use a light wooden wedge, 4 or 5 inches long, 2 inches wide at the large end and $\frac{7}{8}$ inch thick. I carry two or three of these in my tool basket. This wedge is placed on top of the frames, with the large end projecting over the rear of the hive; then by letting the upper story rest on this and using a little smoke I can slowly lower the super in place without crushing any bees, even with very strong colonies. As the wedge is slowly withdrawn, it is given a slight movement sidewise, back and forth, which gives the bees time to get out of the way.

Frank L. Wheeler.

Ripley, N. Y.

A Propolized English Sparrow. About the middle of last October, as I was adjusting and cleaning up my beehives for the winter, my attention was directed to a mass of excited bees on the bottom-board. I supposed they were "balling" a queen from their actions. A few puffs from the smoker scattered them, and I saw a mass of what I thought was an accumulation of propolis. Whereupon I removed the frames and pried the mass loose from the bottom-board, and reached in to



English sparrow completely embalmed with propolis.

remove it, thinking to place it in the can for refuse comb. But on looking at it, I found the remains of an English sparrow. As the entrance to this hive was, perhaps, two inches high, the bird would have had no trouble in entering, whether voluntarily or not. Perhaps it was driven into the hive by a hawk, or it may have been wounded and, in trying to hide, it crawled in. Whatever happened to the bird, I must say it was certainly embalmed for burial as few are.

Linden, Ala.

J. E. Sutton.

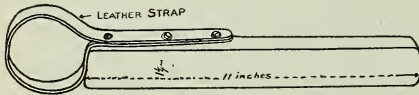
Peppermint for Uniting Bees. If you want to unite bees at any time, try the peppermint method. This method was brought to my attention last year by Dr. A. F. Bonney. Take a pint bottle with a sprinkler top, fill it nearly full of warm water, add a dessertspoonful of essence of peppermint and shake before using. Sprinkle the bees of both swarms with the peppermint water, and they will unite with-

HEADS OF GRAIN FROM DIFFERENT FIELDS

out fighting. It will not be necessary to use all the peppermint water to unite two swarms, but use from $\frac{1}{4}$ to $\frac{1}{2}$ pint according to the strength of the colonies. This method should work well when packages of bees from the South are to be united with colonies which have come out weak in the spring. Last year I used it with success in uniting new swarms of black bees, brought in from the surrounding country, with the bees in my yard. Carl C. Johnson.

Pomfret, Vt.

A Wrench for Tight Screw Caps. I am sending you here- with a drawing of a wrench I made for the caps of 5-gallon honey cans. It works so well that I think perhaps others will want to make one also. The illustration is self-explanatory, only I might add that the leather strap should be looped so it just slips



Homemade wrench to loosen screw caps.

easily over the cap; also, should the leather get worn smooth so that it does not grip satisfactorily, rub it with a little rosin or sandpaper a little. J. H. Peterson.

Brigham City, Utah.

Feeding Cold Syrup. It is funny how we work along different lines without knowing there is anything out of the ordinary in our methods. It never occurred to me there was anything unusual in feeding cold syrup with perforated pails. Of course, it is one of the great advantages of the pails.

Our crates of six ten-pound pails of feed are standard equipment with us just as queen-excluders or supers of combs. In the fall last year we fed over 12,000 pounds of sugar to 597 colonies. Our modus operandi is to put escapes on a yard, and go next day with a truckload of feed. One man trucks home the supers, while the rest of us pack the colonies and put on the feed. Thus the truck takes a load each way, bringing packing material if necessary on the second trip, and we get supers off and cases and feed on the yard all in one day. The feed has been mixed up on some previous day when there was a man to spare for the job—and a job wanted for the man. If we had to get the feed to the bees at the psychological moment when it is warm, I don't know what we would do. It would certainly complicate matters greatly. Of

course, we pack the pails. The shavings are poured over them, and when they are to come off these shavings do for side packing. I cannot see how this could be injurious to the bees. On the contrary, cold syrup excites them much less than warm.

Georgetown, Ont.

Morley Pettit.

Outdoor Wintering in Northern Ontario. During the past six years I have wintered both in the cellar and outdoors. For the past two winters the losses have been nil. Twenty Buckeye hives are wintered in sets of two to four under rough collapsible sheds. The hives are set three or four inches apart, with leaves between and behind. The others are packed two in a case, with 10 inches of chaff over the top. I have seen bees wintered in the latter way in northern Ontario, some distance north of the Cobalts in a latitude where 45° below is quite common. They were snowed in and therefore had excellent windbreaks. There is never any lack of snow up there. This was in 1918 and 1919, when we had but little snow here. Our beeyard is on a sidehill facing southeast, having a board fence to the rear, a row of poultry houses to the right and left and a temporary windbreak on the south. Calm always prevails within this enclosure.

Waterloo, Ont.

L. J. Hedderick.

Another Big Report from South Dakota. My losses were rather heavy last winter for some reason — perhaps the cold weather, as the bees had lots of winter stores. So I bought a few packages of J. J. Scott of Louisiana, two-pound packages with queens, costing me \$4.00. From one of those packages I have taken off 200 pounds of comb honey, as nice as you ever saw, and I can take off another 40 pounds any day I wish to put an escape under the super. At this late hour, 11:30 p. m., as I stood at the door a few moments ago the bees, four or five rods distant, were roaring like a distant train. In fact, nearly every day lately they are flying in the afternoon as strong as in July. Another colony, my nineteenth, has produced 400 pounds of comb honey. This is one I wintered over.

I had 40 colonies in the spring, including what I shipped, and on these I have put 199 supers, each to contain 40 pounds, all of which, except perhaps 10, are full, and these 10 are nearly full.

I have taken off 97 supers, and am taking them off at the rate of 11 a day. If it were not for the fact that it is September instead of August, I should have put on at least 40 empty supers.

I should have done much better if it

HEADS OF GRAIN FROM DIFFERENT FIELDS

had not been for getting hurt in April, making it difficult to do much for about two months. Every ounce of honey I have produced this year is water-white.

Jamestown, S. D.

F. C. Bennett.

[Our readers will recall that friend Bennett gave us a big report from a package of bees sent him about a year ago. Now, I used to think that both North Dakota and South Dakota are rather poor localities for bees. Although friend B. does not say his big yields were from his Hubam clover or perennial sweet clover, I am inclined to think it is the source of the greater part of the honey obtained at present in the Dakotas.—A. I. Root.]

In Defense of the Honeybee. I have lately seen many articles in various periodicals and newspapers in regard to people being stung by bees. I take exceptions to many of these stories for the reason that the majority of people do not know the difference between a bee, a hornet, a wasp or kindred insects.

For example, a neighbor who had screened his porch, called me in one afternoon, saying, "We have several of your bees in here, come in and catch them for me."

I went in and I found one bald-faced hornet, two big yellow jackets, several small hornets, a horsefly—the big kind—and a number of bluebottle flies, also a few wasps, but not a honeybee in the whole collection.

I would much rather be stung by a bee than a hornet, as it is not so severe for me. Any one who knows the difference will be cautious about interfering with hornet nests.

I hope that beekeepers will give this subject some consideration and uphold our useful friend, the honeybee. I make it a point in conversation on this subject to emphasize as well as show how many people err in this matter. The honeybee is not to be classed with those ill-tempered pirates, the yellow jacket and his various relations.

Holyoke, Mass.

C. H. Taber.

Half Bee-Space Above and Below Frames. A bee-space is $\frac{1}{4}$ inch, which is counted as 2-Bu in Japanese measurement. We, Japanese beekeepers, converted our hives to have half the bee-space above and half below. Or, $\frac{1}{8}$ inch is made on the top and and $\frac{1}{8}$ inch at the bottom. It is true, there are many who use the top spacing, and some who use bottom spacing in Japan. But some of them have already done this converting.

Because, in top spacing, there occurs the same disadvantages that Mr. Latham point-

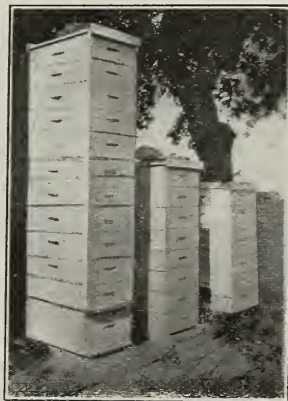
ed out in the March issue of Gleanings, and also, in bottom spacing, there is no bee-space above, the frames of the lower story will be propolized to the under edges of the super. This is inconvenient for us when the super is taken off, for the ends of the top-bars of the frames in the lower story will be attached to the super. The half bee-space above and the half below make the full bee-space between the upper and lower stories when they are supered.

Yasuo Hiratsuka.

Tara, Gifu-ken, Japan.

616 Sections from One Colony, Spring Count. Bees are doing wonders here this year. I call it a double season. Yellow and white and Hubam clovers by the thousands of acres, and so cut back as to make a constant honey flow now 90 days with no let-up. Many colonies are nearing the 600-pound mark in surplus comb honey, and 30 days yet to go. This report is from spring count, all colonies having swarmed here in May. Amateurs count them two colonies while I count them as one.

In many cases the parent colony and the swarm have finished 11 supers each of 28



Six hundred and sixteen sections of comb honey from one colony, spring count. The parent colony and the swarm each finished 11 supers.

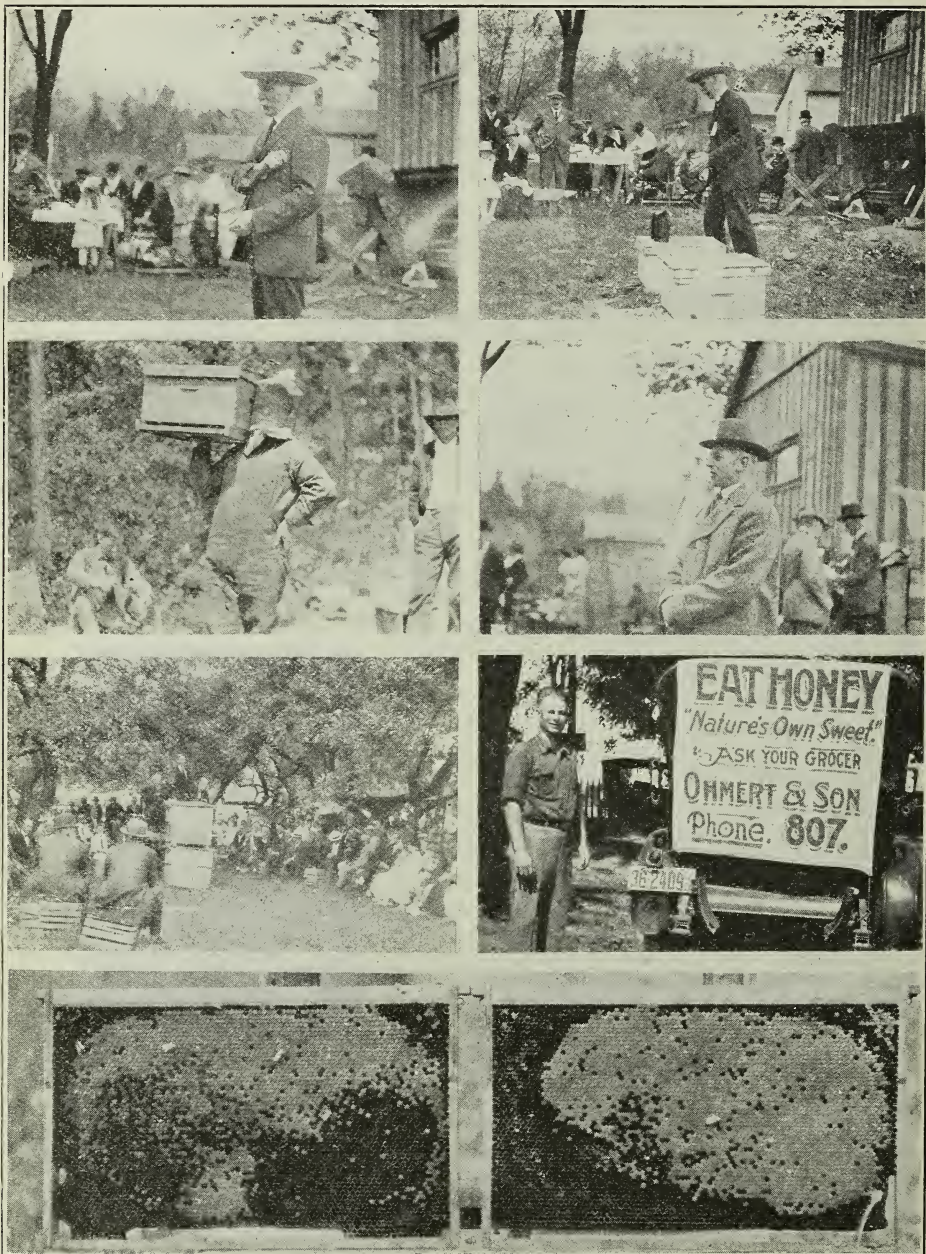
sections weighing 616 pounds; while a few have done much better, having finished 15 supers and still storing well. The past season will go down on record as the best I have known in my 43 years of beekeeping.

Recently I was out looking over some yards. If I had taken my kodak along, I could have sent you a picture of an apiary of 47 colonies tiered up like the tall one in this photo.

Dr. E. A. Morgan.

Vermilion, S. D.

HEADS OF GRAIN FROM DIFFERENT FIELDS



Reading from left to right, beginning at the upper row. (1) James Armstrong, veteran bee-inspector, Ontario, telling what not to do. (2) James Armstrong demonstrating. (3) The large hive has no terrors for this man. He says it is easy to lift with one hand. (4) H. G. Sibbald, talking to beekeepers at a field meet in Ontario. The cold day did not dampen the ardor of these Canadian beekeepers. (5) A characteristic field day in central New York. (6) A good suggestion for advertising honey. (7-8) What a good queen can do late in August when conditions are favorable.

REVERSE the entrance stop for winter so the top side is down. When this is done, dead bees cannot clog the entrance."—Will L. Tower, Oakland County, Michigan.

"We have almost an entire failure of the honey crop here. Bees are actually starving unless fed, since they have consumed what surplus they had in July. Beekeepers are up against a serious problem."—J. L. Barkley, Jasper County, Mississippi.

"The honey crop in this locality is very short. Fruit bloom, locust and poplar were destroyed by a hard freeze the last of April. Clover has yielded but poorly because of the wet cool spell of weather we have had this summer."—F. D. Covell, Frederick County, Maryland.

"If Friend Woodruff (see July Gleanings, page 460) will set his smoker, when not using it, on the nearest beehive to the right (or on anything else—the ground sometimes will do) he will not only save his overalls and all other muss, but will find the habit more agreeable."—L. Tissaw, Yavapai County, Arizona.

"I think most of the troubles that come to beginners came to me last year with the exception of foul brood, which I hope never to see; but I weathered the storms and came through with an increase of one swarm and a production of 200 pounds of honey, which I consider pretty good for a beginner. I am saving about one-half of this for 'millions of stores at our house' for the coming season, and trust that I may make them a better report."—H. S. Thompson, Fulton County, N. Y.

"Owing to extreme dry and warm weather the usual crop of white clover was a total failure in Portland, although in some localities where there was sufficient moisture in the soil some beekeepers report a surplus from this source, but not so with many. Prospects early in the season here were good. Some surplus was stored from fruit and berry blossoms, and if white clover had yielded normally good reports would have been the rule; but bees in the mountains are doing better than for years. Some apiaries average 200 pounds of extracted honey from fireweed, which is yielding well. Contrary to teachings, colonies headed with queens three years old are the top-notchers, and for three years these same colonies have kept up their reputation as being the best. I could show you colonies, stacked six stories high, that have about 400 pounds ready to extract. We have but little foul brood this season, but enough to let us know we still have it."—E. J. Ladd, Multnomah County, Oregon.

BEES, MEN AND THINGS

(You may find it here)

"I believe I am correct in saying that the British methods have long been looked down upon by other countries; but this, I am sure, is due more to

their ignorance of our methods than from faulty management in our modern systems. Here then is an opportunity for your readers to get to know us better—"Read our new paper, *The Bee World*."—F. M. Claridge, near Colchester, England.

"Carniolans or our native bees stand the confinement better than any strain of Italians I have tried. I wish some one would breed out three-fourths of the swarming trait from Carniolans and leave the good traits."—O. B. Griffin, Aroostook County, Maine.

"I keep only one strain of bees—pure three-band Italian—and if an occasional hybrid shows up I supersede the queen at my earliest opportunity. I have great faith in pure Italians as being disease-proof."—J. M. Munro, Ontario, Canada.

"I have come to the conclusion after a number of years experimenting that 10 to 15 pounds of good sugar syrup fed to bees a week or two before they are put into the cellar goes a long way to insure successful wintering."—G. A. Barbisch, Houston County, Minnesota.

"Out of my 815 colonies I found last season only two cases of foul brood and only one cell of disease in each. That is speaking very well of my method of treatment, this being the next season from a clean up of over 100 colonies."—E. G. Norton, Churchill County, Nevada.

"'Honey as a cosmetic' reminds me that in my youth honey was highly esteemed as a surgical dressing, keeping as it did the irritated surface soft and moist if not exactly antiseptic. Say, what about that antiseptic proposition, who knows?"—D. B. Thomas, Wright County, Missouri.

"I received one of the well-known letters of Jay Smith. As the postman delivered it to me he asked, 'John, how much do Italian queens cost?' 'Oh, two or three dollars.' 'Yes, my Italian queen cost me a lot more than that, and I have had to support her ever since.' (The postman is an Italian)."—John Clark, Essex County, N. J.

"I got an old piano box and laid it down on its back. In this I put four of my six colonies of bees. I have about three inches of leaves around them and then newspapers laid on top and all around the hives. I left what you might call a dead-air space between the hives, and the papers kept out all the circulation of air, so I think they will come out all right in the spring."—Forest McHose, Boone County, Ia.

THROUGH-
OUT the
northern portion
of the country the
bees will cease brood-rear-
ing early this
month, if they
have not already
done so. In the

southern part of the country brood-rearing is continued a few weeks longer, but even there brood-rearing is entirely suspended usually some time during October. If all goes well with the colony, brood-rearing may not again be resumed until March in the North. If the bees are compelled to be unusually active because their stores are not good, because they are not sufficiently protected, or because the cluster is too small to keep up the heat of the colony without undue effort, brood-rearing may be begun earlier, sometimes in February or even in January. In the South where the bees fly frequently brood-rearing is usually begun earlier because of the stimulus from early-gathered nectar and pollen. As a rule, the better the bees are wintering, the longer they will postpone the beginning of brood-rearing in the spring.

Size of Cluster Needed for Winter.

One of the first things for the beginner to learn is that the bees must be in good condition in the fall in order to winter well. If the colonies are too small, or if they are made up largely of old bees that will die of old age before brood-rearing can be resumed in the spring, good wintering cannot be expected. Now that it is too late to rear any more young bees especially in the North, the only thing that can be done in the case of weak colonies is to unite two or more of them in order to make one strong colony for winter. A good colony will occupy at least five or six spaces between the combs on cool mornings when the temperature outside is near freezing. If the hive is double-walled, and therefore warmer inside, the cluster will be larger, so that in a well-packed hive a good colony will occupy most of the spaces in a ten-frame standard hive, and the cluster on cool mornings will touch both sides of the hive. Colonies that occupy less than five spaces between the combs, as a rule, should be united with another small colony; but, in estimating the strength of the colonies, it is well to remember that a small colony of young bees may have greater vitality than a large colony of old bees.

In the North it is now rather late to unite weak colonies by the newspaper plan as described in last issue, but if any have neglected to unite their weak colonies in September as there advised, it can still be done in another way. After brood-rearing has ceased and the weather is cool enough to cause the bees to form a compact cluster, they can be united by simply transferring the combs of bees directly from one hive to

TALKS TO BEGINNERS

Geo. S. Demuth

another. To unite two colonies in this way, take out all of the combs not occupied by bees from each hive. Then take out one of the outside combs which

contains only a few bees from each colony and brush these back into the hive of the stronger colony. This will leave a comb in each hive on the outside that has a large circle of bees on it. Now take out the combs from the weaker of the two colonies *en masse*, if the frames can be handled in this way, and set this group of frames down into the other hive in such a manner that the two clusters shall come in contact. If the weather is cool enough at the time of uniting, colonies united in this way do not fight. No attention need be paid to the queen. In fact, it would be difficult to find her after the bees have ceased brood-rearing and have formed a cluster.

To Make the Hive Fit the Cluster.

— If any of the combs at the sides of the hive are empty and not occupied by the bees on cool mornings, it is well to take out these empty combs to reduce the size of the brood-chamber to fit the cluster. The space made vacant by taking out these combs should be filled either with chaff division boards or by tight-fitting division-boards with packing material, such as dry forest leaves or planer shavings, packed in the spaces between the division-boards and the sides of the hive. Some beekeepers reduce their colonies to seven frames or even less during the winter, placing a chaff division-board at each side to fill up the space. If, however, the combs at the sides are filled with honey it will not be advisable to remove them, but the bees should be packed so well for winter that the cluster will reach nearly across the hive from side to side. Usually it is not necessary either to unite colonies in the fall or to reduce the winter chamber in this way unless the bees have swarmed excessively or the beekeeper has made too much increase by dividing his colonies.

Winter Stores.

In addition to having enough vigorous young bees to form a good-sized winter cluster, each colony should have not less than 25 or 30 pounds of stores for winter. The amount of honey in each hive can be determined approximately by weighing the hive as it stands and then deducting the weight of the hive, combs and bees. A standard ten-frame hive, with a metal cover and an inner cover but with empty combs, weighs about 34 pounds. To this should be added about five pounds for the bees and a little pollen in the combs, making the total weight of the hive and bees without honey about 39 to 40 pounds. Hives made of lumber heavier than pine will weigh more than this,

and of course the double-walled hives will vary in weight according to the kind of packing used. The Buckeye hive, when packed with planer shavings, weighs about 38½ pounds without the chaff tray or cover. By weighing an empty hive without frames, and then adding one pound for each comb, one can determine with sufficient accuracy the weight of whatever hive is used.

In weighing the hive, if platform scales are not available, the weight can be determined with sufficient accuracy by using ordinary spring scales, by hooking under one end of the hive at a time and lifting it enough to obtain the reading. Adding together the weights obtained by weighing each end of the hive the approximate weight of the entire hive is obtained.

In order to be sure that there are at least 30 pounds of honey in the hive, the total weight of the ten-frame standard hive with a metal cover and an inner cover should be not less than 68 to 70 pounds. An eight-frame hive similarly equipped and provisioned should weigh not less than 62 to 65 pounds. Any that weigh less should be fed until the weight of the hive shows that it has at least 30 pounds of stores. Or, if frames of honey are available, one or two combs that contain but little honey can be taken out and frames of honey inserted in their place.

How to Make Syrup for Winter Feeding.

For feeding at this season syrup should be made of about two parts of granulated sugar to one part of water, either by weight or by measure. Nothing but granulated sugar should be used for this purpose, especially in the North where the bees are confined to their hives for long periods during the winter without a cleansing flight. Apparently it makes but little if any difference whether cane sugar or beet sugar is used for winter feeding. It is well to count on using about as many pounds of sugar as the colony is lacking in its full supply of stores, not counting the water used in making the syrup. For instance, if a colony lacks 10 pounds of having enough honey, it will need about 10 pounds of sugar. Ten pounds of sugar and five pounds of water will make fifteen pounds of syrup; but, since there will be some loss in the process of feeding, it will be safer to give such colonies the full 15 pounds of syrup than less.

To make up this amount of syrup, put five pints of water into a vessel and heat it to the boiling point, then pour in ten pounds of sugar and stir until all of the crystals are completely dissolved. To reduce the tendency of this thick syrup to crystallize in the combs or in the feeders, dissolve a little over a half teaspoonful of tartaric acid in a little water and add this to the syrup or put the acid in the hot water before adding the sugar. Since the action of the acid to prevent granulation takes place only while the syrup is hot, it is well to bring the temperature of the syrup to the boiling point

and hold it there for 10 or 15 minutes; but great care should be taken not to scorch the syrup, for scorched syrup in many cases would be fatal to the bees during winter.

How to Feed the Syrup.

To make a feeder, use an ordinary ten-pound friction-top honey pail. Punch about 100 small holes in the cover by means of a small nail and hammer. When the syrup has cooled enough so that it does not burn the hands, the pail may be filled with the warm syrup and the lid put in place. It should then be inverted and placed directly on the top of the frames in the hive or above an escape-board having the bee-escape removed so that the bees can have access to the feeder. When the bee-escape board is not used a hole the size of the pail should be cut in a piece of burlap so that the hive can be covered except where the feeder stands. An empty hive-body should be put on top of the hive, and the pail of warm syrup should be packed with old clothing or some kind of packing material until the bees have had time to take the syrup down.

In the extreme northern part of the United States and in Canada where the bees are confined to their hives for long periods without a cleansing flight, they will winter much better if fed 10 to 15 pounds of sugar syrup as above described, even though they have plenty of honey. If this is fed some time during October the bees will put it where it will be used first during the winter, and, since good sugar syrup does not contain indigestible matter, it will be better than honey for winter stores that may have been gathered late.

Winter Protection.

For wintering outdoors the hives should be protected from the prevailing winds. If they are not already located in a protected place, some kind of windbreak should be provided. Except in the extreme South it pays well also to pack the bees for winter, thus giving them greater protection than that afforded by a single thickness of lumber in single-walled hives. Those who use the double-walled hives having the packing already built in should see that the top packing is put in place and pressed down at the edges to prevent the escape of heat between the chaff tray and the upper portion of the hive. It is well, also, to fill the hive-stand with forest leaves and see that the hive fits the hive-stands snugly so that the wind will not sweep through under the hive. Single-walled hives can be packed in a store box, if one can be found that is the right size to allow from two to four inches below, three to six inches on the sides and eight or ten inches on the top for packing. Care should be taken to fit the bridge connecting the hive entrance with the opening in the outer box, so that the packing material may not creep into this tunnel and close it during the winter. A good roof must be provided so that no water can leak through to wet

(Continued on page 680.)

Q UESTION.
—Do the bees
ever need
more food
than the brood-
chamber full dur-
ing the winter
months?

J. L. Whittier.
Georgia.

Answer. — If

the brood-chamber is full of honey the colony has sufficient stores for winter, but brood-chambers are not often full. When extracted honey is being produced, too often there is but little honey left for the bees if all the supers are removed at the close of the season. For this reason it is necessary either to leave some of the honey in the supers or to feed heavily for winter. In milder climates, many beekeepers leave an upper story nearly full of honey to insure sufficient winter stores. In the far north where the winters are severe or wherever it is desirable to winter in a single story, it is necessary either to feed the colonies run for extracted honey or to put combs of honey from the supers into the brood-chambers before all the honey has been extracted. Even large brood-chambers are usually short of honey in extracted-honey production unless there is a fall honey flow. In comb-honey production there is usually more honey in the brood-chamber at the close of the season.

Size of Entrance for Winter Packing Cases.

Question.—When bees are packed in the large packing case should the hive entrance be left $\frac{3}{4}$ inch deep by the full width of the hive or should it be reduced $\frac{3}{4}$ inch by 3 inches by using the entrance block? Edwin Helt.

Illinois.

Answer.—It is well to leave the large entrance at the hive and also have a deep tunnel from the hive to the outer case. The entrance is then reduced to the desired size by closing down the entrance to the packing case. Some use a tunnel 1 inch deep and some even $1\frac{1}{2}$ inches deep, the opening in the outer case being the same depth and about 8 or 10 inches long. This opening is then closed except $\frac{3}{8}$ inch at one end, making a vertical opening $\frac{3}{8}$ inch wide by $1\frac{1}{2}$ inches high. Some use a block having a single $\frac{1}{2}$ -inch auger hole for closing the opening in the outer case. In the spring this entrance block is removed when the bees need a larger entrance.

Robbing Out Colony Infested With Moth.

Question.—I had moths in one of my hives and turned it up to clean out the bottom. The next day other bees piled in by the hundreds and robbed this colony. What can I do for it now?

Pennsylvania.

E. F. Holman.

Answer.—There was no doubt something wrong with this colony, such as queenlessness, lack of food or one of the brood diseases, which so weakened it that the moths were able to get a start. This same weakness also made the colony easy prey for the robbers. The colony was in all probability practically worthless before the robbers began on it, so the loss of this colony is not a

GLEANED BY ASKING

Geo. S. Demuth

real loss since it would probably have died anyway early in the winter. If it was weakened by one of the brood diseases this robbing out takes on a more serious

aspect, for the disease would then be carried to the other colonies. You can tell by looking at the brood-combs whether the colony had American foul brood, for the evidence of this disease is left in the combs long after the colony has died, the evidence being in the form of dark-brown scales lying on the lower cell wall. These scales can be seen by holding the comb in a good light and then tipping the upper edge toward the eyes so that the light strikes the lower side of the cell. In the case of doubt, a piece of comb containing such scales or dead and discolored larvae or pupae can be sent to the Bureau of Entomology, Washington, D. C., for examination. If this colony had American foul brood, it will be necessary to keep close watch over the other colonies for disease next spring.

Newspaper Method for Uniting.

Question.—Do you advise uniting for winter by the simple newspaper method, or would you advise separating the colonies by a wire screen for a day of two and then using the newspaper plan? Also, about how long before the time of packing for winter would you advise that I unite them?

Virginia.

J. P. Jones.

Answer.—It is not necessary to use a wire screen between the two colonies before placing the newspaper between. In fact, it would be a disadvantage instead of an advantage. Unite before cool weather begins.

Killing Bees Not Wanted for Winter.

Question.—My bees have swarmed so much that they have not stored any surplus honey. I do not want so many colonies. How can I kill the bees I do not want for winter?

Pennsylvania.

Mrs. Stephen Schmidt.

Answer.—Instead of killing any of the bees it will be much better to unite them until you have reduced to the desired number of colonies. If they are all strong enough for winter, it will be better to unite them next spring; but, if they are not as strong as they should be now, you can unite them now before you pack them for winter.

Moth Larvae in Comb Honey.

Question.—I find tiny white worms in the sections of comb honey taken off three weeks ago. What is the cause of this, and how can I store comb honey to prevent it?

B. J. Stover.

Nebraska.

Answer.—These tiny white worms are the larvae of the wax moth. The eggs from which they hatched may have been on the honey when it was taken from the hives, in which case storing the honey in a moth-proof room would not have prevented your trouble. You can kill these larvae by fumigating the supers of comb honey with carbon bisulphide. To do this, pile the supers

in a tight pile, place an empty super on top and in it place a shallow dish containing an ounce of carbon bisulphide if there are five supers in the pile, and two ounces if there are ten supers in the pile. Place a tight cover on top and leave several hours or over night.

Bee Room in Basement with Furnace.

Question.—How can we fix our bee room in the basement adjacent to the furnace room so it will not be too warm for the bees? Mae McFarlane. Minnesota.

Answer.—There is not much danger of the cellar becoming too warm from the furnace room if the furnace is properly installed; but it may become too warm during mild weather if much of the outside is exposed above ground, permitting outside temperature greatly to influence the cellar temperature. By banking up the outer walls with earth or with straw this can be largely overcome.

Saving Bees Taken from Bee-Tree.

Question.—How can I save the bees taken from a bee-tree that is cut as late as October? Virginia. Miss L. de Bruijn.

Answer.—You can save these bees by hiving them on combs of honey if you have them. If you do not have them but have empty combs, you can hive the bees on the empty combs and then feed them enough for winter. They will need 20 to 30 pounds of thick sugar syrup or honey. It would be difficult to save the bees without combs, though this could no doubt be done in your locality even this late by giving them frames of foundation and feeding them warm syrup.

Confining Bees in Hives During Winter.

Question.—Last winter I fixed my colonies in the attic with a wire screen over the entrances inside for ventilation but closed from out of doors. In December they became quite restless and the dead bees nearly closed the entrance. What was the cause of their restlessness? A. W. Stone. Michigan.

Answer.—The bees were restless because they were imprisoned within the hive. The entrance cannot safely be closed in this way during the winter even when the bees do not fly, because as soon as they discover that they cannot escape from the hive they become greatly excited and soon die in great numbers from exhaustion. It is necessary to leave a small opening at the entrance during the winter.

Wintering Weak Colony Over Strong One.

Question.—What is the best method of wintering a weak colony over a strong one, if such a method will work? F. B. Lambert. West Virginia.

Answer.—While you might be able to do this in your locality by placing a wire cloth between, it will be better to winter the two colonies separately. The weak colony should have the combs that are not occupied taken out and the space filled with chaff division-boards or by a tight-fitting division-board with packing back of it. To place the weak colony over the strong one would rob the strong colony of too much heat.

Imports and Exports of Honey for United States.

Question.—Please inform me, if possible, as to the amount of honey that was imported and exported for the United States last year.

Tennessee.

Hamilton Steele.

Answer.—According to the figures secured through the Bureau of Foreign and Domestic Commerce, the total amount of honey exported from the United States during the calendar year 1921 was 1,880,511 pounds. The amount of honey imported from foreign countries during the same period was 1,953,312 pounds. The amount of honey shipped to the continent from Porto Rico and Hawaii was 2,507,224 pounds, thus making a total of nearly four and one-half million pounds brought into continental United States.

During the fiscal year ending June 30, 1922, the amount of honey exported was 2,406,922 pounds. The amount imported during the same period was 2,556,540 pounds. In addition to this 2,494,353 pounds were shipped to the continent from Porto Rico and Hawaii, making a total of more than five million pounds brought into continental United States.

Virulence of Spores in American Foul Brood.

Question.—I have some extracted honey several years old that was taken from a colony having foul brood, some of it being granulated. Should I use this in any way to feed my bees for winter? Ohio. A. C. Arnold.

Answer.—It will not be safe for you to feed the honey that was stored by the colony having American foul brood even though the honey is several years old. American foul brood spores retain their virulence for many years. It will be much better for you to feed sugar syrup for winter instead of this honey. You can feed this honey to the bees next spring by diluting it with an equal quantity of water and boiling in a closed vessel for a half hour to render it sterile.

Killing Bees of Diseased Colonies.

Question. I find a few colonies badly infected with American foul brood this fall. I would like to kill the bees by the most humane method and clean up. What shall I use? Indiana. Chas. E. Caldwell.

Answer.—You can kill the bees by setting the hive (without bottom) over burning sulphur in a shallow pit in the ground or by closing the entrance of the hive, then pouring in a cupful of gasoline at the top evenly distributed over the tops of the frames and then closing down the cover tightly. If sulphur is used, a shovelful of live coals should be placed in the bottom of the pit and the sulphur thrown on the glowing coals.

Feeding Corn Syrup for Winter.

Question.—Would it be safe to feed corn syrup (Karo) for the bees to winter on? Kansas. M. C. Rathbun.

Answer.—Corn syrup would not be fit for winter food for the bees even if you could induce them to take it, which is doubtful. Even a small amount of this syrup mixed with sugar syrup would be fatal to the colonies in the North where the bees cannot have frequent flights.

THE University of Wisconsin announces a short course in beekeeping to be held at Madison, Nov. 13 to Dec. 20. Further information in regard to this short course can be obtained by writing to Prof. H. F. Wilson, Madison, Wis.



with the Schedule Committee should make application at once to Prof. H. F. Wilson, Madison, Wis., in order that the meeting may be held at a time when out-

side speakers can attend.

* * *

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the courthouse in Freeport, Ill., Tuesday, October 17. Further particulars in regard to this meeting may be had by writing to the secretary, B. Kennedy, 416 East State Street, Rockford, Ill.

* * *

Dr. S. B. Fracker, State Entomologist of Wisconsin, has accepted the secretaryship for the American Honey Producers' League for the remainder of the year. When the new officers of the League were elected there was no secretary chosen, and Dr. Fracker has consented to take this position until a new secretary can be elected.

* * *

Prof. F. Eric Millen, Provincial Apiarist of Ontario, writes that great preparations are being made for the Ontario Beekeepers' Convention on Dec. 6, 7 and 8. The debate by prominent Ontario beekeepers on the merits of the ten-frame Langstroth hive as compared with larger hives and an important business session in regard to the handling of supplies are the two outstanding features of this convention.

* * *

The new officers of the American Honey Producers' League have tentatively set the date for the next annual meeting for Feb. 6, 7 and 8, the meeting to be held at St. Louis, Mo. If possible, arrangements will be made to have the Illinois and the Missouri State Beekeepers' Associations meet at the same place on Feb. 8 and 9. This arrangement if carried out will permit the beekeepers of these two states to attend the meetings of the American Honey Producers' League at the same time they attend their own state meetings.

* * *

The Schedule Committee of the American Honey Producers' League is now arranging the League schedule of winter meetings. This committee arranges the meetings in the various groups of states in such a manner that outside speakers can go from one meeting to another without losing so much time and with less travel than was necessary under the old plan. In this way many associations were able to secure outside speakers that could not have been obtained otherwise. Secretaries of beekeepers' associations who have not already been in correspondence

Ray Hutson, formerly of West Virginia, is taking up research work in beekeeping for the state of New Jersey. Mr. Hutson will do some work in breeding, investigations as to the value of bees in commercial orchards and an investigation of the damage to adult bees in the state of New Jersey, supposed to be from poisoning. His work is under the supervision of Dr. Headlee, State Entomologist. The turning over of the investigation work to Mr. Hutson will relieve E. G. Carr of this work and permit him to give his time to inspection and educational work.

* * *

Friedman Greiner, the well-known beekeeper of Naples, N. Y., was accidentally killed on August 22. Mr. Greiner left his home in an automobile at 4 o'clock in the morning, taking with him his shotgun. In driving over a bridge, the shotgun is believed to have been discharged, the charge of shot entering his body. Marks on the road showed that the car zigzagged down the road for some distance, then plunged over an embankment. The shotgun was found in a clay bank where it was probably thrown by the explosion. Mr. Greiner is well known to the readers of this journal through his writings, having been a contributor for many years.

* * *

The Dr. C. C. Miller Memorial Library Committee, co-operating with the University of Wisconsin and the State Beekeepers' Association, is planning a Miller Memorial pilgrimage of beekeepers in 1923 in connection with the annual Beekeepers' Chautauqua, which will be held on the university grounds at Madison, Wis., August 13 to 18, 1923. During this period the Dr. Miller Library will be dedicated, and on Saturday, August 18, a pilgrimage will be made to the former home of Dr. Miller at Marengo, Illinois. The committee is arranging for memorial services to be held at the church at Marengo in which Dr. Miller for many years taught a Sunday school class. If arrangements can be made with the church authorities, a memorial plate will be placed in the church at that time. During the Chautauqua a regular program of speeches will be given, and Dr. Phillips, C. P. Dadant, E. R. Root and G. S. Demuth have already agreed to attend.

* * *

Geo. H. Rea has resigned his position as extension specialist at State College, Pa., to take up work with the A. I. Root Co. as service representative.

WHEN I commenced reading the Bible at the turning-point of my life (which I have referred to so many times) I would now and then burst out laughing, and it really frightened the dear wife. It was contrary to her bringing-up. She had always been taught, or supposed that the reading of the Bible was a sacred and solemn thing; and I agree with her when I say it is. But yet there is a lot in the Bible that should prompt us to "rejoice and be glad." And there are many funny things that the Bible tells about—at least they were funny to me, because of the many *unexpected* triumphs of righteousness over iniquity. A friend of mine, a man who had been addicted to drinking, gambling, and no one knows what else, was suddenly converted. His wife told Mrs. Root and me that he would often break out suddenly and say: "O Polly! Just listen to this. Did you ever know before there are such glorious promises in the Bible?"

And this, my friends, is as it should be. The Bible is a literal gold mine when the Holy Spirit goes with it to make it plain. I have told you that frequently some precious promise from the Bible comes to me as if it were the voice of somebody speaking. And sometimes it speaks *plainer* than literal words. I am now going to tell you how it has *just been* speaking to me.

If you will turn to Our Homes in the September issue, page 601, last paragraph, where I mentioned that precious promise, "My grace is sufficient for thee," you will get at the point. After that page was in print and I was looking over the printed words, the Holy Spirit spoke to me again (I hope you will excuse me for putting it that way), and this is what it said:

"Count it all *joy* when ye fall into divers temptations." Instead of having the blues and beginning to doubt God's word—that is, I am afraid I began to doubt just a little—I ought to have counted it "all joy." The idea seemed almost ridiculous or preposterous, if you will excuse my using such terms. The idea of counting it *all joy*, when Satan has been testing you perhaps day and night for days, or maybe weeks! Just think of the idea of scraping up courage enough to rejoice and praise God that he has honored you and trusted you (mind the word *trusted*) to let Satan get in all his tricks. And then for you to feel blue and

OUR HOMES

A. I. ROOT

My brethren, count it all joy when ye fall into divers temptations; knowing this, that the trying of your faith worketh patience. But let patience have her perfect work, that ye may be perfect and entire, wanting nothing. If any of you lack wisdom, let him ask of God, that giveth to all men liberally, and upbraideth not, and it shall be given him. But let him ask in faith, nothing wavering; for he that wavereth is like a wave of the sea driven with the wind and tossed.—James 1:2-6.

discouraged because you have yielded just a little by listening to what Satan had to offer. Instead of feeling as guilty as if you had already committed a crime, you should just "count it all joy."

Now, my dear brother or sister, while what I have been telling you is in mind read over the Psalms of David, and see if they do not shine out

with a new meaning.* You will then be ready to go on and read the first verses of that wonderful epistle of James. This experience which the dear Savior has permitted you to go through with has been to try your faith and make it stronger. A baby in learning to walk would make no headway if it did not get any bumps and falls; and the newborn soul that is just learning to follow the Master gets stronger and braver by his bumps and falls. Therefore "let patience have her perfect work." And the last verse tells us to hold fast to our faith. No matter what happens, do not get discouraged, and do not even think of turning back, for Jesus says, "No man, having put his hand to the plow, and looking back, is fit for the kingdom of God."

Now, dear friends, I want to switch off a little and talk about "casting your bread on the waters," and the promise that, after you have forgotten all about it, and can not remember the transaction at all, you should find it "after many days." Read the following letter:

By the way, I do not think I ever told you younger folk of the firm how A. I. Root treated me nearly 40 years ago. At that time I was a raw unsophisticated country lad with little knowledge of business methods, but even then a crank on bees. I had over a dozen colonies at the time all in hives and frames fashioned with a hand-saw. Somehow I obtained possession of A. I.

* Here is one as an illustration:

For innumerable evils have compassed me about; mine iniquities have taken hold upon me, so that I am not able to look up; they are more than the hairs of mine head; therefore my heart faileth me.—Psalm 40:12.

I have seen that verse many times, but I had somehow got it into my head that David said his *enemies* were more than the hairs of his head, and that had always seemed to me rather preposterous. If he had really said *enemies* it would have been preposterous; but, bless your heart, it was not his enemies—it was his *iniquities*. It was not the outside world that troubled him. It was Satan in his own heart. Remember the dear Savior said (Mark 7:18) that it is not "that which entereth into the man," that defiles him, but "that which cometh out of the man." With this explanation, read from verse 18 to verse 24 of Psalm 40.

Root's catalog, and I pored over it day and night, and how I longed for some of the lovely goods listed and illustrated therein. Anyhow I managed by hard work and scrimping to save up something like \$100, which I sent straight away to America, and was delighted in due course to receive invoices, etc., to say that my goods had been shipped per the "Albert Russell" from New York. Isn't that name indelibly engraved on my memory? Soon after, however, news reached Australia that the "Albert Russell" had foundered three days after leaving New York. As I knew nothing of shipping, etc., at the time, I had given no instructions for the goods to be insured, I can assure you it was a case of "Blasted Hopes." How I did want those up-to-date goods—particularly the extracting outfit—and how I did want that bit of capital? In my innocence I wrote to A. I. Root asking him if there was any possibility of recovering something from the shipping companies. Of course the reply was that there was no possibility whatever of securing any compensation, but this is what A. I. Root himself did. He wrote straightway and offered under the circumstances to duplicate the whole order for half price. A. I. Root was under no obligation whatever to do this. He had probably never heard of me before, and for all he knew would never hear from me again—yet he did it. I must add that since then I have had the pleasure of sending some tens of thousands of dollars to the A. I. Root Co., and every deal has been more than satisfactory, so it is quite evident that there is a good deal of the old A. I. Root personality still pervading the business. If ever you wish to make use of this reference to A. I. Root, you are quite welcome to publish it.

H. L. Jones.

Goodna, Queensland, June 19, 1922.

Now, you may be a little surprised when I tell you that I have no recollection of any such transaction; but when I got to the point of his letter telling how hard he had worked to scrape up the money, and how it was now all gone, not a trace of it left, I began wondering if our institution away back in the years gone by did not make some kind of liberal offer to send him more goods. *Perhaps* I did it myself. But one might think at first glance that standing half the loss was a pretty liberal suggestion. And now here is a moral in the above story, and it is right along in accordance with Bible teaching, "Do good and lend, hoping for nothing again." Would one suppose we would be likely to have *made money* by that liberal way of fixing up the catastrophe? If he sent us thousands of dollars as a result of that ridiculous (?) offer, the profit amply made up what we lost; and then think of having somebody watch for the opportunity to speak a good word for us, for 30 or 40 years, was not that worth more than one can well estimate? Is there any other book or any other source in the whole wide world that gives such suggestions and encouragement as the Bible?

Just one little item in closing:

Years ago at a teachers' meeting we were talking about the text, "Blessed are ye when men shall revile you, and persecute you, and shall say all manner of evil against you falsely, for my sake. Rejoice and be exceeding glad." I suggested there is a place in the Bible where it says we should not only rejoice but "leap for joy" when we are unjustly accused and persecuted. The rest of the class there, perhaps a dozen teachers, turned on me and asked me where

I could find any such thing in the Bible. Yes, the minister, too, who was present, joined in the laugh at my expense. I kept insisting that I was right; and before the meeting closed I turned to the passage in question, finding it in the sixth chapter of Luke, verse 23. After I had silenced them all I still felt sore; and because they had run on me as they did, I thought there ought to be an unanimous apology. The preacher, however, suggested by way of defense that I had the "advantage." Then I asked for an explanation. "In what way, my friends, did I have any advantage in so stoutly insisting that I was right?"

Then our good pastor paid me a high compliment by saying, "My good friends, Mr. Root had the advantage of us in that he has been studying the Scriptures, perhaps, more than any of the rest of us have. And he has also studied them with more *enthusiasm* in order to get out these wonderful hidden promises and truths."

"A Land Flowing With Milk and Honey." Artichokes, Helianti and Sunflowers.

I have a long story to tell you; and I hope it will interest you as much as it has myself, and that it will help in the great work of making not only our land but the lands of the whole wide world, lands "flowing with milk and honey." One morning when I carried a load of my nice Bliss Triumph potatoes to market with my electric automobile the people gathered around on the sidewalk. Somebody said, "Why, Mr. Root, how does it come that *you alone* succeed in growing those beautiful potatoes?"

I replied, "My good friend, I have been growing potatoes (or at least *seeing* them grow) almost every year of my life for *eighty years*."

I have told about the doctors telling my mother (bless her memory!) that if she wanted to see me get back to life she would have to keep me out of doors as much as possible, and get me interested in outdoor work and seeing things grow. My good mother always had some early potatoes, and she taught me how to grow them in the rich soft dirt, and pull them out of the hill. I think she got me interested in gardening before I was three years old. When I was five years old we left the farm and moved into a little town. Just as soon as we were fairly located I remember mother said she must have a flower bed. By the way, did you ever know of a mother who did not love flowers? About the only available good soil in that new home was a chipyard where they had chopped up firewood for years past. By her directions father scraped up a great mound of "chip dirt." Of course he raked out all of the bits of wood, sticks, etc.—and this reminds me that my good friend Elizabeth White said that the very best fertilizer for this wonderful new blueberry is

dirt scraped up from an old chip pile. And this recalls that I have not told you about my two blueberry plants or little trees. Each one bore a fine crop of fruit; but as they were of different varieties one was a little ahead of the other. Our Medina birds were not at all slow in discovering the delicious blueberries, and before I knew it one bush was almost completely stripped. When the birds got a taste of them they could not wait till the berries ripened. But I "got busy" just then, and put a wire-cloth screen over the other bush, and thus I saved the berries. This wire-cloth screen is one we had made to keep our seed corn so the rats and mice could not get at it. Let us now get back to that mound of chip dirt.

Mother planted her flower seeds, but only one plant came up. This she took great pains with, dug about and watered it, and it grew tremendously. It went away up above our heads and branched out, and in due time it was covered with innumerable blossoms. Father had been joking her right along about her "posy bed." He said her one plant was nothing but a great weed; but when it was covered with blossoms and was *humming with bees*, he owned up that it was something worth while after all. But I think he did not quite give up that it was only a weed.

One day when the whole family were admiring it he called our attention to the way the ground was heaving up, as if there were big potatoes or something else under the soil. Then he stooped down and pulled out a large *artichoke*. There was a big laugh all around, but we five children made good use of the big crop of artichokes from just one hill. The rich, mellow chip dirt did the business. Rotten wood or decayed sawdust, we are told, produces an acid soil, and almost all kinds of acid fruits do better with this acid soil; and it seems also to suit this particular but, in some respects, well-known vegetable, the *artichoke*.*

In Gleanings for April 15, 1913, I gave a description of a new tuber plant brought out by John Lewis Childs called "heliantii." Here is his description of it:

Big Money Growing Helianti.

Helianti, the new "Wonder Plant," the great combination vegetable. As a money-maker it's a wonder. Unlike ginseng, you don't have to wait five years for a crop. A very showy flower and a new summer and winter vegetable of phenomenal merit. This new plant produces showy golden-yellow flowers like cosmos blossoms, in endless profusion, and immense quantities of fleshy tubers, somewhat after the style of sweet potatoes, that are splendid eating fall, winter and spring. It stands both heat and cold, and will thrive any-

where in any soil or climate. What would you think of hay, potatoes, asparagus, cauliflower, oyster-plant, mushrooms, squash and beautiful flowers, all on one plant?

Of course I sent for some, and in due time had some tubers, and also a great mass of flowers covered with bees, that reminded me of my mother's posy bed of years ago. Cooked as directed, these were delicious eating, without any question. In fact, they made a pretty good substitute for oysters, and tasted a little like the well-known sal-sify or vegetable oyster. But in our clay soil the yield was poor, and it was quite a little trouble to dig them; and Mrs. Root objected that they were a good deal of trouble to prepare for cooking. A little later a friend in California gave us some that were quite a little larger, and he claimed that they would yield as many bushels per acre as potatoes; but we never succeeded in getting a yield anything like it. Furthermore, after my write-up in Gleanings one of our office girls brought me about a dozen of the real old-fashioned artichokes; and after we had enjoyed the helianti tubers for quite a spell, Mrs. Root tried cooking the artichokes in the same way, and pronounced them almost if not quite equal.

Let us now drop the artichoke we have been talking about, for another artichoke that bears a vegetable above the ground instead of under it. Let me introduce it by a clipping below from the Scientific American:

Thistle Gardening in San Francisco.

By G. A. Orb.

In the backyards of San Francisco and the Half Moon Bay region we find a giant thistle being cultivated for its food value—a giant thistle of Mediterranean origin with spines which are both relentless and cruel, but a large purple flower most gloriously scented which holds an irresistible lure for the bees; a giant thistle which so loves its adopted home that it refuses to be grown elsewhere in spite of the many attempts to do so.

This same thistle, with its wonderful, big buds and great Corinthian leaves with their prickly spines, is known to the consumer as the artichoke; and such a delicacy do we regard the bud of this same flower that it sells for a higher price than the famous Hood River apples, Fresno raisins, Florida oranges, or Santa Clara apricots. Indeed, in our cities not only do we find it displayed in the fancy grocery, but not unusual is it to find the push-cart peddler devoting a part of his limited space to the same delicacy. And both the rich man and the poor man buy it—often paying as high as a quarter apiece.

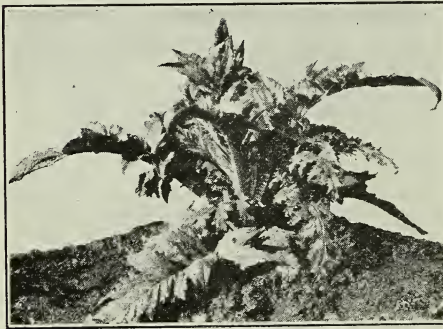
We might perhaps better speak of this unique industry as floriculture rather than market gardening; but by whatever name we call it, California reaps the nice annual return of better than a million and a half from it. The artichoke season begins early in the days of October and reaches its crest about the first of April; nor accidental is it that it should reach its height just at the time when it will make the most definite appeal to the city consumer. St. Louis, New Orleans, New York, Chicago, as well as the cities along the Pacific slope, all draw their supply from San Francisco. From this region (and the land just a few miles south) there were shipped last year some 500 car-load lots; 350 of these went to eastern cities, and 150 to cities along the Pacific slope, while, of course, San Francisco itself is a big consumer.

Twenty-five cents apiece does not seem such a high price to pay for this delicacy when we stop to think that it must go on the market in the

* Not far from where I sit is a ginseng shed; and it has been running for a dozen years or more. The proprietor told me that the only fertilizer that can be used successfully with ginseng is rotten sawdust—just that and nothing else. Of course the plants must be shaded from the sun to imitate their native woods. So it seems there are quite a few fruits and vegetables that need and sometimes "insist" on this acid soil produced by decaying vegetable matter without any stable manure or similar fertilizer.

middle of the winter when the appeal to the popular taste will be most powerful; and when we realize what a back-breaking job it is to prune carefully and cultivate the plant so that it may break forth into blossom at just the identical time we desire, and that this same blossom shall hold all of the delicious succulence which makes it so loved. The grower cuts back his plants in June, and it is marvelous how soon after the plant has been pruned to the very ground the great new leaves and sturdy flower stalks make their appearance. And if it be given plenty to eat—for it has a ravenous appetite and must have plenty of fertilizer, plenty of water, with long days of bright sunshine and a rich black loam soil—it will be most accommodating and bud and blossom just as the gardener would like. But woe betide the gardener who cuts down the ration!

You will notice in the above that this artichoke is also a honey plant; and our good friend Burbank tells us in his circular that he has perfected a variety of this artichoke with blossoms as large as a bushel basket; and the bud of this plant before the blossoms come out has been found to be such a delicious food that 500 carloads were shipped to eastern cities in 1921. Perhaps somebody can tell me how many carloads are now being shipped. As you perhaps know, I have now two daughters in Los Angeles, Calif., and they are agreed that artichoke buds are a delicious vegetable. But they do not get buds anything like the size Burbank mentions. Some years ago I was interested in this new artichoke, and succeeded in getting one or two to bloom here in Ohio; but we had forgotten or did not know just how to use the plant, and never made any use of the buds. Some of the leaves of that plant were three to four feet long. We have a few plants growing in our garden now that came from Burbank; but I fear our season is going to be too short for them. We give here a cut of this artichoke to show you what they look like.



The California artichoke, or "big thistle," which bears edible buds that are now being shipped to the large cities all over the United States by the carload. Burbank tells us of an improved variety that bears blossoms as large as a bushel basket.

I think I read somewhere that the Californians claim there is only one locality in California where these artichokes can be produced successfully, and that spot is rather holding the trade. I do not see why they

can not be grown in Florida, and I am planning to make a trial of it.

The sunflower and artichoke are closely related. In fact, the blossoms of the artichoke and heliantia look very much like a small sunflower.

In our August number for 1919 I gave you some extracts from the dairy papers showing that the sunflower stalks, when cut at the right time, promise to surpass corn or anything else as a plant for filling silos and helping dairymen in giving the world milk (instead of beer) and butter and cheese. I was very enthusiastic about it. But our Ohio Experiment Station rather discouraged me. While they admitted its value for dairy purposes they had not succeeded in getting nearly as many tons per acre as they got of corn. But our dairy periodicals now report that in many localities sunflower silage not only gives more tons to the acre, but produces more and better milk, cheese, etc.; and I believe it is pretty well settled that in many places where sunflowers succeeded they are found to be preferable to corn for filling silos. For one thing they will stand more frost in cold weather than corn, as I have demonstrated, and which I reported in 1919 and 1920. And you may recall that there is a spot in California where they grow sunflower seeds not only by the ton but by the carload; and the May number for 1920, page 300, gives a report from it as a honey plant, some colonies producing 100 pounds of sunflower honey. In Russia, where the Russian sunflower seed comes from, they save the seed to such an extent that oil is expressed, and this oil is said to be a very good substitute for butter. My impression is, however, that the oil from no plant nor animal can equal the regular old-fashioned cow's butter. Can any of our readers tell us more about it?

Now, friends, with the above long preface I am just ready to tell my story.

About the first of July I found a notice in the National Stockman and Farmer of a new and improved artichoke, and I at once addressed the writer of said article for further particulars; and it was one of my "happy surprises" to receive very promptly the letter below:

My kind friend Root:

May I tell you it is like a benediction to get such a letter from my friend and teacher of 40 years' standing.

I planted every tuber I had of the French White Jerusalem artichoke, and they are in their rapid growth now. I looked to see if new tubers had formed but there are none yet. They grow like the potato, and now they are just sending out the white underground stems on which the tubers will form a little later. This tuber has been developed on the farm of ex-Congressman Sibley of Franklin, Pa., and the results there attained are almost beyond belief. I am writing Mr. Sibley to send you his report on the work done.

The common wild tuberous artichoke I always grew but never thought highly of it, as it lacks productiveness and the tubers are small and very uneven. This improved tuber is very large and extra-smooth, and a production of 850 bushels to the acre on a large scale is indeed wonderful.

and the tops used as a cattle feed amount to over four tons to the acre. L. W. Lighty.

East Berlin, Pa., July 7, 1922.

And soon after, I received another exceedingly kind letter from friend Sibley together with a circular in regard to the new artichoke, from which I make clippings as below:

Mammoth French White Jerusalem Artichoke.

As the student of horticulture knows, the artichoke and the sunflower are congeners, belonging to the helianthus family. Both are indigenous to America, and while it may be doubted if their northern and southern limits are clearly defined, we do know that the eastern and western limits extend from ocean to ocean.

Several years ago the horticulturists of France, taking the American Jerusalem artichoke, greatly improved the tuber of this plant in size, color, flavor and prolific yield, without apparently in any way impairing its hardness. The improved product is known, and may be found described in Bailey's Encyclopedia of Horticulture, as well as in his Cyclopaedia of American Agriculture, as the Mammoth French White Jerusalem artichoke.

Recalling to memory my boyhood days, I secured some seed of this French artichoke for our table use only. The tuber carries a much higher percentage of protein than the potato; otherwise, as shown by Professor Bailey, its chemical character is similar. No vegetables obtainable during the winter months have proved more welcome to our table; we have yet to find anyone who does not like this improved artichoke, for when properly cooked the flesh is very white and possesses a somewhat sweet and nutty flavor.

Observing the luxuriant growth of stalk of the artichoke with its fine, delicate and abounding leafage, it occurred to me that the stalk as well as the tuber might be valuable. Therefore, cutting some of the green stalks, and at the same time cutting stalks of green corn, we placed them before our horses. Invariably the horses would leave the green corn fodder for the stalks of the artichoke. We then tried them on our sheep and swine with the same results. Our few elk and buffalo seem to like them better than any other food we can place before them. Our cows were less unanimous, the jury splitting six to six.

The palatability of the artichoke as compared with that of its relative, the sunflower, was surprising. Where the sunflower with its rough stalk and extremely coarse fiber would be neglected, the artichoke would be eaten with avidity.

This year, Mr. Hanna, the manager of River Ridge, had our head gardener and the assistant head gardener in several different portions of the field dig enough hills to fill a bushel basket and make an estimate of the yield of the tubers. Our head gardener reported slightly in excess of 1200 bushels per acre. The assistant head gardener made his separate report, showing in excess of 800 bushels per acre, but stating that he thought his report a very conservative one. Being for the last 12 years an invalid under the constant care of a trained nurse, I requested Prof. H. H. Haverstick, our county farm bureau agent, to make a verification test of his own, and his sworn statement of a yield of 850 bushels per acre will be found in an appendix attached thereto, also the sworn statement of Mr. C. L. Goodwill, one of the most prominent and highly esteemed farmers of this section, showing a yield of 967 bushels per acre.

Unlike the sunflower, it has a very fine leaf. Its foliage is profuse, and altho the plant attains a height as great as 12 feet, it is bushy and bunchy in its growth; and the stalks of our ensilage range from one-eighth of an inch to one-half inch in diameter.

Through the winter we have fed the tubers to our horses, cows, sheep and swine, as well as to our poultry. When we place the artichokes in the boxes where the horses are eating their oats or corn, they will leave the grain to eat the tubers. The pigs and sheep will do the same, tho the

cows will not always do so. It would not be fair to say that our milk yield has averaged greater than ever before simply from the artichokes, but we know that the average has been higher.

It is with some satisfaction that we feel ourselves allowed to elect whether we shall have tubers or fodder—or both the same season. (In those fields from which our ensilage was harvested, tho the tubers are not so large, we had a crop of 535 bushels per acre.)

We have found that our artichokes do better or at least as well planted in the fall as in the spring. Even when no other crop could be safely put into the ground, we can plant our artichokes and know that the hard freezing of the ground or drouth will not destroy the planting.

It is also a source of satisfaction to be able to dig this crop of tubers either in the fall or in the spring, for freezing seems in no manner whatever to prove injurious to them. With us, during some winters the thermometer will register from zero to twenty-five degrees below for a week or ten days in succession. Fearing no damage, we may store this crop more easily where it was planted than elsewhere, with the consequent saving in labor of rehandling.

Personally, I have not yet reached that point where I would recommend anyone to plant so extensively as we have done; but my faith in the value of it does permit me to suggest that each farmer plant enough in his garden for table use and raise enough seed so that another year at small cost he may use them if he desires.

What we do know is that the artichoke will, when grown as hay or ensilage, kill out most other weeds on our farm, for its shade is so dense that the other weeds are smothered. It is the only crop we have ever grown that takes care of itself long enough to let the farmer straighten up and take all the kinks out of his back at one time.

I deeply regret that heretofore we have not tested its pasture value. Yesterday we turned our cattle and sheep into our pasture fields where about an acre in each field had been planted this spring to artichokes. Though this pasture field was rich in clovers and many other grasses, both cattle and sheep absolutely neglected all but the artichokes, the plants of which were 12 to 15 inches high.

Since writing the above we have put in five additional acres in our pasture, so that now our planting is 95 acres.

After reading the above you may be sure I made friend Sibley at "River Ridge Farm" a visit; and said visit was one of the bright spots in my busy life. But this artichoke article has spun out so, much to my regret, that an account of it will have to go over to our November issue. I might say to you, however, that the new artichoke is already growing on our grounds in Medina, and I am at present very happy in watching the growth "morning, noon and night."

A New "Declaration of Independence" Needed.

The clipping below comes from the Independent. Is it not high time that we as a nation begin to consider the matter?

Labor-union coercion and oppression have spread too far already; and in too large a degree what we have called the American principle of a free man's right to work where he will has been reduced to a bit of empty rhetoric. It is time, not merely for a new declaration, but for a new and practical assertion, of American independence of such an oppression.

Classified Advertisements

Notices will be inserted in these classified columns for 50c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column, or we will not be responsible for errors. For special conditions on bee and queen advertising, please write us. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

H. N. Major, Griggs Bros. Co., I. J. Stringham, E. L. Lane, Alice Burrows, R. V. Cox, H. A. Meyer, J. E. Harris, Fairmount Apiary, Elton Warner, W. T. Perdue & Sons, Daniel Danielson, Loveland Honey & Mercantile Co., Hazel V. Bonkemeyer, J. F. Michael, Chas. W. Zweilly, Jensen's Apiaries, P. M. Williams, J. D. Harrah, P. B. Ramer, Crenshaw County Apiary, D. T. Gaster, C. W. Phelps & Son, J. B. Holloper, Julius Victor, J. M. Gingerich, Electric Wheel Co., Herman McConnell, R. O. Cox, W. G. Lauver, F. A. Lockhart & Co., Jay Smith, John G. Miller, F. Coombs & Sons, Jasper Knight, E. F. Quigley & Son, Ross B. Scott, Hayneville Apiary Co., Frank Bornhoffer, D. E. Collier, A. S. Tedman.

HONEY AND WAX FOR SALE.

FOR SALE—White clover honey in 60-lb. cans—none finer. J. F. Moore, Tiffin, Ohio.

FOR SALE—Fine quality raspberry-milkweed honey in new 60-lb. cans. P. W. Sowinski, Bellaire, Mich.

FOR SALE—White sweet clover in cases, two 60-lb. cans, 10c per lb., f. o. b. Joe C. Weaver, Cochrane, Ala.

FOR SALE—25 tons fine extracted white clover honey at 12c. Comb honey prices on request. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—White, amber and buckwheat honey in new 60-lb. cans and 5 and 10 lb. pails. H. B. Gable, Romulus, R. D. No. 2, N. Y.

FOR SALE—Extracted white clover honey, 1922 crop, new tins, two 60-lb. cans to case, at \$15.00 per case. J. G. Burtis, Marietta, N. Y.

Wisconsin-Hassinger-Clover-Basswood-Extracted-Honey. Qualifies superior flavor and density. E. Hassinger, Jr., Greenville, Wis.

FOR SALE—12,000 lbs. of choice white clover honey, well ripened, put up in new 5 and 10 lb. pails. Sample 25c. W. B. Wallin, Brooksville, Ky.

FOR SALE—Choice new clover extracted honey put up in new 60-lb. cans. Write for prices, stating quantity desired. W. M. Peacock, Mapleton, Iowa.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gal. barrels. Samples and price on request. A. I. Root Co., 23 Leonard St., New York City.

FOR SALE—White clover honey in 60-lb. cans and 5-lb. pails, this year's crop, none better. Write for prices. Sample, 10c. F. W. Summerfield, Waterville, Ohio.

GOOD white honey. Tell us what you want. Price and sample on request. A. I. Root Co., 230 W. Huron St., Chicago, Ill.

FOR SALE—Clover extracted, one 60-lb. can, \$7.50; two 60-lb. cans, \$14.40; buckwheat, one 60-lb. can, \$5.40; two 60-lb. cans, \$10.20. Also comb honey. J. J. Lewis, Lyons, N. Y.

FOR SALE—Very best clover-basswood honey. Produced in new combs. Packed in new containers. 60-lb. cans and 5-lb. pails. Sample, 20c. Write for prices. A. C. Ames, Weston, Ohio.

RASPBERRY HONEY—In 60-lb. cans, 2 in a case for \$14.40; one in a case, \$7.50. Sample by mail, 20c, which may be applied on order for honey. Elmer Hutchinson & Son, Lake City, Mich.

FINEST quality clover honey in 60-lb. cans, two to a case at \$15 a case; also buckwheat honey in 60-lb. cans, 10c a pound. Sample, 10c. All f. o. b. here. Edw. A. Reddout, Box 205, New Woodstock, N. Y.

FOR SALE—Finest quality white clover extracted honey, well ripened and of fine flavor, put up in 60-lb., 12-lb. and 2½-lb. cans, and 10 and 5 lb. pails. R. C. Ortlieb, 29 Van Buren St., Dolgeville, N. Y.

OUR 1922 crop of white clover extracted honey is now ready for the market. New cans and cases. Say how much you can use, and we will be pleased to quote you our very lowest price. E. D. Townsend & Sons, Northstar, Mich.

FOR SALE—No. 1 white comb honey, \$6 per case of 24 sections, six or eight cases to carrier, light and dark amber extracted in 60-lb. cans, 10c per lb.; amber baker's honey in 50-gal. barrels, 8c per lb. H. G. Quirin, Bellevue, Ohio.

CHOICE extra fancy white clover honey in new 60-lb. cans, 120 lbs. net, \$15. Sample, 20c. Write for prices on larger quantities. Also 100 cases extra fancy Hubam clover honey same price. Edw. A. Winkler, R. D. No. 1, Joliet, Ill.

FOR SALE—A1 diamond clear sweet clover extracted honey, in 60-lb. cans, 10½c per lb.; in 5 and 10 lb. friction-top pails, 15c per lb. This honey is guaranteed to be equal to any honey in U. S. in body, color and flavor. Virgil Weaver, Box 311, Moline, Iowa.

FOR SALE—Choice clover extracted honey in new 60-lb. cans and cases. Write for prices on carload or case lots; comb honey in Danz. and beeway sections. Packed in six or eight case carriers. Quality unexcelled. J. D. Beals, Oto, Iowa.

CLA-FO-NY Quality (liquid or crystal) honey. Well ripened by the bees, free from wax or pollen. Clover, case 2 60-lb. cans, \$16; case 15 5-lb. pails, \$12.75. Buckwheat 2 60's, \$10.80; 15 5's, \$9.75. Sample, 20c. 5 case lots, 5% off. Clarence Foote, Delanson, N. Y.

FOR SALE—We can supply honey to beekeepers or other roadside sellers who may need to buy beyond their own supply, packed as follows: 2½-lb. friction top tin cans, 2 dozen in case; 5-lb. friction top tin cans, 1 dozen in case; 10-lb. friction top tin cans, ½ doz. in case; 60-lb. square cans, 1 to case; 60-lb. square cans, 2 to case. We have the following kinds of honey: Standard white, alfalfa, sweet clover, California sage, California orange, light amber, amber. Write for prices. The A. I. Root Co., Medina, Ohio.

OUR 1922 crop extracted honey is a very fancy grade, water white clover, which was left on the hives until thoroughly cured by the bees before extracting, making it very heavy bodied. This thick, rich honey is all packed in new 60-lb. cans, two to the case. Of course, we have to ask a little more for honey of this quality than ordinary honey. When in need of a good article, send a dime for a sample, and address your inquiry to D. R. Townsend, Northstar, Mich.

HONEY FOR SALE—In 60-lb. tins, water-white orange, 13c; white sage, 12c; extra L. A. sage, 10½c; buckwheat, 10c, etc. Hoffman & Hauck, Woodhaven, N. Y.

My new crop of comb and extracted honey, unexcelled for quality. Prompt service and satisfaction guaranteed. Sample, 15c, to apply on first order. O. W. Bedell, Earlville, N. Y.

FOR SALE—A very good grade of buckwheat comb honey, will average 22 lbs. to the case of 24 sections. A little goldenrod in some of it. \$4.25 per case, or four or more at \$4.00 f. o. b. Andover, Ohio. Edgar Williams, Pierpont, Ohio.

HONEY AND WAX WANTED.

WANTED—Comb and extracted honey. Correspondence solicited. John O. Hightower, Excelsior Springs, Mo.

WANTED—Honey in ton lots, comb and extracted of all kinds. Send sample. State price. Joe Miuarits, 8927 Keller St., Detroit, Mich.

BEE SWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED—Comb and extracted honey, carload and less. All kinds of honey and beeswax for sale. Walter C. Morris, 105 Hudson St., New York.

WANTED—Honey in ton lots or less. Comb and white to amber extracted of good flavor for bottling. Send sample and price to S. G. Crocker, Jr., Roland Park, Baltimore, Md.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade price, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

WANTED—Beeswax. We are paying 1c and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance. The A. I. Root Co., Medina, Ohio.

FOR SALE.

HONEY LABELS—New design. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE—Used cans, about 20 cases, 2 60s. 60c per case f. o. b. here. Wm. A. Cook, Attleboro, Mass.

FOR SALE—Used honey cans in cases, good condition. S. T. Fish & Co., 163 W. S. Water St., Chicago, Ill.

FOR SALE—"SUPERIOR" FOUNDATION, "quality unexcelled." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

PORTER BEE-ESCAPES save honey, time and money. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewiston, Ill.

WORTH \$\$\$ to you. Make your own frames. Save one-half. Non-sag thin top-bar. New feature. Sample, 10c. D. S. Hall, Marshfield, Vt.

FOR SALE—At a bargain, 200 Texas aluminum honeycombs, new. 50 aluminum honeycombs, slightly used. L. L. Forehand, Ft. Deposit, Ala.

FOR RENT—Florida bee farm, share crop. no severe cold, long-producing season. Excellent chance. C. M. Davis, 4537 N. 13th St., Philadelphia, Pa.

FOR SALE—Complete files of Gleanings (except 3 numbers) from first number to 1918. Files kept by G. M. Doolittle. P. G. Clark, Marietta, N. Y.

FOR SALE—1000 10-frame comb honey supers, Lewis "Beeware" new this summer, well painted, 600 of them filled with sections and foundation. 12,000 sections, 4¼ x 1½; 125 lbs. Dadant's thin surplus foundation; 800 shipping cases, two-tier with glass. Will sacrifice for quick sale. Write now! Clyde V. Fisher, Joliet, Montana.

WANTS AND EXCHANGE.

WANTED—Comb-back chairs, also old rockers and chests with drawers. John Rick, 434 Oley St., Reading, Pa.

WANTED—Foundation mill. Rolls must be in perfect condition. The Stover Apiaries, Mayhew, Miss.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

FOR SALE—Good second-hand 60-lb. cans, two cans to case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash. C. H. W. Weber & Co., Cincinnati, Ohio.

BEE SWAX wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered. A. I. Root Co. of Iowa, Council Bluffs, Iowa.

OLD COMBS, cappings or slumgum wanted for rendering by steam press process. We pay cash for wax rendered, trade for supplies, or work it into foundation. W. T. Falconer Mfg. Co., Falconer, N. Y.

WANTED—To hear from parties having large quantities of beeswax for sale. Also want old combs and cappings. Will render for 5c per pound and pay the highest market price in cash or trade. F. J. Rettig, Wabash, Ind.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our 1922 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Ill.

FOR SALE OR TRADE—All or part of 510 colonies of Italian bees all in four-story 10-frame Standard L. hives, full sheets, wired combs. No disease. Bees located in four yards, two complete power 8-frame Root extractor outfits, all in A1 shape, lots of extras. These apiaries averaged 120 pounds (a case) to the colony, spring count, of fine sage honey. Can give part time, or will trade for bees in Utah. Apiaries located on S. B. National forest which protects from overstocking. 10c a colony yearly rental. A good chance for some one who wants a paying business, and home market in Santa Barbara, Calif. Address C. Elmer Morgan, Box No. 641, care R. G. Forsyth, Santa Barbara, Calif.

BEEES AND QUEENS.

FOR SALE—11 healthy colonies. T. O'Donnell. 1147 S. Springfield Ave., Chicago, Ill.

HARDY Italian queens, \$1.00 each. W. G. Lauer, Middletown, Pa.

FOR SALE—Italian queens, nuclei and packages. B. F. Kindig, E. Lansing, Mich.

FOR SALE—200 colonies, 4 locations, 4 main crops. \$1250. R. H. Yearshaw, Maxwell, Calif.

GOLDEN Italian queens, untested, \$1.00; six, \$5.00. E. A. Simmons, Greenville, Ala.

AM now booking orders for package bees with queens. Get my prices. J. J. Scott, Crowville, La.

FOR SALE—100 colonies of bees in 8-frame hives. Good condition. C. H. Cobb, Belleville, Ark.

FOR SALE—Bees, 20 colonies, no disease, in standard bodies, Hoffman frames. J. E. Venard, Wilmington, Ohio.

BEEES FOR SALE—26 swarms, all in new Jumbo hives, \$188.50 for the lot. W. B. Brorein, Wapakoneta, Ohio.

FOR SALE—150 colonies bees, 20 acres fertile Florida land in tupelo honey section. Reason. W. I. Keiter Cherrydale, Va.

FOR SALE—75 stands Italian bees in good condition. Also fixtures to run a first-class apiary. W. P. Turner, Peoria Heights, Ill.

LATE QUEENS—For late queens send me the order. Pure three-band Italians. No disease. Low prices. D. W. Howell, Shellman, Ga.

FOR SALE—Bright Italian queens, 1, \$1.00; 12, \$10.00; 100, \$75.00. Safe arrival guaranteed. T. J. Talley, Greenville, R. D. No. 3, Ala.

FOR SALE—100 to 200 colonies of bees (Italian) in perfect condition for winter, standard 10-frame hives. E. L. Lane, Trumansburg, N. Y.

PACKAGE BEES—\$1.50 per pound. Untested Italian or Carniolan queens, \$1.25 each. Circular free. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE—July 1, Buck Goldens, 1 queen, \$1.00; 6 queens, \$5.00; 12 queens, \$10.00; virgins, 40c. W. W. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE—60 colonies Italian bees, A1 condition, with comfortable home, suburbs Denver, \$2800. C. S. Everett, 1162 S. Logan, Denver, Colo.

"SHE-SUITS-ME" queens, line-bred Italians. \$1.50 each; 10 to 24, \$1.30 each. See back cover of January number. Allen Latham, Norwichtown, Conn.

FOR SALE—Early package bees, nuclei and queens. We handle 1800 colonies. Shipping season March 1 to June 1. Loveitt Honey Co., Phoenix, Ariz.

GOLDEN Italian queens for sale. One queen, 90c; 6 queens, \$5.00; 12, \$9.00; 100, \$65.00. Safe arrival and satisfaction guaranteed. J. F. Rogers, Rt. 3, Greenville, Ala.

QUEENS—For summer and fall. Write for prices and guarantee, state quantity desired and when shipment wanted. I can fill your orders. J. L. St. Roman, Hamburg, La.

POOLE'S three-banded Italian queens are guaranteed to arrive safely and give satisfaction. Untested, 80c each; 25 or more, 75c; tested, \$2.00. Rufus Poole, Greenville, Ala.

WE are booking orders now for spring delivery for the famous "Colorado Queens." Send your order early so as to be sure to get your queens. C. I. Goodrich, Wheatridge, Colo.

QUEENS—Golden or three-banded Italians of highest quality. Every one guaranteed or your money back, 75c each; 6, \$4.00; 12, \$8.00. G. H. Merrill, R. D. No. 5, Greenville, S. C.

BEEES BY THE POUND — Also QUEENS. Booking orders now. FREE circulars, giving details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

TRY MY CAUCASIAN OR ITALIAN three-frame nuclei at \$5.00 each, with untested queen. Tested, \$1.50; untested, \$1.00, of either kind. No disease. Peter Schaffhauser, Havelock, N. Car.

GOLDEN QUEENS that produce large beautiful bees, solid yellow to tip, very gentle and prolific. Untested, \$1.25 each; select tested, \$3.00 each; breeders, tested, \$5.00. Dr. White Bee Co., Sandia, Texas.

FOR SALE—Leather-colored Italian queens, tested, until June 1, \$2.50, after \$2.00. Untested, \$1.25; 12, \$13.00. ROOT'S GOODS, ROOT'S PRICES. A. W. Yates, 15 Chapman St., Hartford Conn.

FOR SALE—The Doolittle and Clark apiary, consisting of 80 colonies, including house, barn, shop and machinery, poultry house, bee-cellar, etc. For full particulars, address P. G. Clark, Borodino, N. Y.

IF GOOD bright Italian queens are wanted by return mail, send your order to M. Bates, Greenville, Ala. Price, \$1.00 each; \$10.00 per dozen; \$75 per 100. Pure mating, safe arrival and satisfaction guaranteed.

BRIGHT ITALIAN QUEENS, \$1.00 each, 10% less in dozen lots. Pure mating, safe arrival and reasonable satisfaction guaranteed in U. S. and Canada. Write us for prices on package bees. We have them in season. Graydon Bros., Rt. 4, Greenville, Ala.

LET me save you money on your 1923 package bees, nuclei and queens. Book early and not be disappointed. Queens balance of season, 85c; 6 or more, 65c; after Oct. 20, \$1.00 straight. Everything guaranteed. J. L. Morgan, Tupelo Honey Co., Columbia, Ala.

SPICER'S three-band Italian queens by return mail. If you are interested in improving your stock and getting larger returns from your bees, head your colonies with these queens. Untested, \$1.00; 6, \$5.50; 12, \$10.00; tested, \$2.00 each. Robt. B. Spicer, Wharton, N. J.

TESTED QUEENS—One-year-old tested three-banded Italian queens, descended from the famous Moore strain. Were reared in full colonies and are very fine queens. Price, \$1.50 each; 6 for \$8.50; 12 for \$16.00. Safe arrival and satisfaction guaranteed. Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE—DEPENDABLE GOLDEN ITALIAN QUEENS add beauty to your bee quality. Virgins, 60c; 5 for \$2.50; untested, \$1.00; 6 for \$5.00; select untested, \$1.50; 6 for \$6.50; tested, \$2.50; 5 for \$10.00; selected, \$3.00; breeders, \$5.00. Safe arrival and quality guaranteed. S. H. Hailey, Pinson, Tenn.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, \$1.25 each, 12, \$1.00 each. Special prices on larger orders. Send for circulars. J. H. Haughey Co., Berrien Springs, Mich.

FOR SALE—1000 colonies bees, 10-frame Langstroth hives, fully equipped for comb and extracted honey, auto truck, big warehouse, located at Laurel, Montana, one of the best honey-producing sections in Montana; \$7.50 per colony, with or without locations. Weber Brothers Honey Co., Blackfoot, Idaho.

HOLLOPETER'S ITALIAN QUEENS are bred up to a standard and not down to a price, yet price is low where quality and service count. Select untested each, \$1.25; 6, \$7.00; 12, \$13.00; 25, \$25.00. Write for mailing date and price on larger lots for requeening. Pure mating, no disease, safe arrival and satisfaction guaranteed, J. B. Hollopeter, Rockton, Pa.

PLACE your early orders now for queens and package bees. Golden Italian and Caucasian queens, April 1 to May 15, 1923. Untested, 1, \$1.50; 12, \$15.00; 25, \$1.00 each; 2-lb. package bees, \$5.00; 3-lb. package, \$6.50. 20% off above prices after May 15. Golden Italian breeders, \$15.00 to \$20.00. Safe arrival guaranteed. Terms, 25% with order. Sarasota Bee Co., Sarasota, Fla.

PACKAGE BEES FOR 1923—Three-band Italians, bred for business. A 2-lb. package of the Yankee hustlers with a select untested queen for \$5.00; 25 or more, \$4.75 each. Attractive prices on large lots. One-fifth cash books your order. Order early and make sure of shipping dates. We do not accept more orders than we can fill promptly. Caney Valley Apiaries, Bay City, Texas. Yan-ey Bros., owners.

BEES FOR SALE in lots of one colony up to 100 or more, as desired, or a series of outyards, including small house in town, 32-foot honey-house, 8-frame power extractor, engine, sawtable. 150 new hives in K. D., Ford auto, and various other items required in this line of business. Past 19 years I've produced upwards of 75 tons of honey in this locality. If whole outfit is wanted it can be bought as a going concern, by paying 25% down, and balance remain one, three or five years at 7% with acceptable backing of notes. Cause for selling, doctor's insistence, age, ill health, and laziness on my part. Correspondence solicited. A. W. Smith, Birmingham, Mich.

MISCELLANEOUS.

TYPEWRITERS—All makes slightly used, \$20 up. Easy payments. Free trial. Express prepaid. Guaranteed two years. Payne Company, Rosedale, Kansas.

THE BEE WORLD—The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. The Apis Club, Benson, Oxon, England. Send us a post card today. It is well worth your little trouble.

MEDICINAL roots and herbs are very profitable to grow. We especially recommend growing Golden Seal which with good care will yield as high as \$10,000 per acre for each crop. It takes several years to mature but will average \$1000 a year. Special Crops, a monthly paper, tells how. Sample copy, 10c. \$1.00 per year. Address Special Crops Pub. Co., Box "G," Skaneateles, N. Y.

TOO LATE TO CLASSIFY.

FOR SALE—12,000 lbs. fancy white clover honey, in 60-lb. cans and 5-lb. pails. Sample, 10c. W. H. Mays, Goshen, Ind.

FOR SALE—Michigan clover honey. Prices right. 60 lbs., 10 lbs., 5 lbs. Fancy comb. Write us. Michigan Honey Producers' Exchange, 5493 Grand River Ave., Detroit, Mich.

FOR SALE—No. 1 white comb honey, 24 sections per case. \$5.50 in carrier, 8 cases per carrier, f. o. b. Penfield, Ill. Also white clover extracted honey in 60-lb. cans. J. F. Coyle, Penfield, Ill.

FOR SALE—Extracted white clover honey of finest quality, rich and delicious and thoroughly ripened in extra strong new 60-lb. cans at 16c per lb. Repeated orders from well-satisfied customers are proof of the quality and purity of this honey. Cash must accompany each order. Liberal sample sent for 20c. G. A. Barbisch, La Crescent, R. D. No. 1, Minn.

WANTED—Comb and extracted honey. Fancy yellow wax. C. J. Morrison, 750 Cottage Grove Ave., South Bend, Ind.

WANTED—Fancy comb, all grades of extracted. Send samples, quantity, prices. Prompt payment. Michigan Honey Producers' Exchange, 5493 Grand River Ave., Detroit, Mich.

TRADE NOTES.

Inasmuch as we expect to discontinue listing the following articles in our general catalog we are offering them at a big reduction in order to close out present stock:

- | | | |
|-----|---|---------|
| 15 | C472802—Root capping-melters, price each | \$12.00 |
| 15 | C472803—Dadant uncapping-cans, price each | \$13.00 |
| 14 | C472808—Boardman solar wax-extractors, price each | \$19.00 |
| 70 | C261602—Metal top telescope cap cover with inner cover, 8-frame, K. D., price each | 1.50 |
| 80 | C262606—Metal top telescope cap cover with inner cover, 10-frame, K. D., price each | \$1.60 |
| 3 | C261601—Metal top telescope cap cover with inner cover, 8-frame, nailed and painted, price each | \$1.90 |
| 3 | C262601—Metal top telescope cap cover with inner cover, 10-frame, nailed and painted, price each | \$2.00 |
| 100 | C271802—Demuth winter cases, complete, K. D., price each | \$0.50 |
| 4 | C271701—Dovetailed winter cases, 8-frame, with wood cover, complete, nailed and painted, price each | \$2.75 |
| 1 | C272701—Dovetailed winter case, 10-frame with wood cover, complete, nailed and painted, price each | \$3.00 |
| 1 | C271702—Dovetailed winter case, 8-frame, with wood cover, complete, K. D., price each | \$1.25 |
| 2 | C492001—One and one-half horse-power Busy Bee gasoline engines. Price, each | \$35.00 |
| 5 | one-half-inch honey pumps. Price each, complete with fittings, \$7.00; complete without fittings | \$5.00 |
| 37 | C499121—Dadant electric wire imbedders. Price, each | \$0.75 |
| 100 | Bee Models—The Anatomy of the Bee. Price, each | \$2.50 |
| 100 | C490561—Crate staples, 1½ x ¾-inch, price per pound | \$0.12 |

Above prices are strictly net f. o. b. Medina, Ohio.

Send all orders for the above direct to The A. I. Root Company, Medina, Ohio.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE. PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

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Sworn to and subscribed before me this 25th day of September, 1922.

H. C. WEST, Notary Public.

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A Splendid Collection
Of Early Spring Bulbs **48¢**

This is simply to introduce our wonderful stock of bulbs—just received from Holland—and to acquaint you with our service and high business standards. These bulbs are strictly first-grade stock, big, hardy. *But they must be planted this fall.* Upon receipt of 48¢—stamps or money order—I'll send you by parcel post, prepaid, your choice of one of the following collections:

1. Half dozen delicately fragrant hyacinths, or
2. One dozen lasting and brilliant red tulips, or
3. One dozen ever popular yellow daffodils, or
4. One dozen dainty paper-white narcissuses or indoor decoration, or
5. Two dozen white crocuses that peep through the ground even before the snow is gone, or
6. A mixed assortment of each.

Make your selection and order now. I've hundreds of other kinds, too. Also fruit, shade and evergreen trees, and bush fruits. Priced remarkably low. Free catalog.



T. J. DINSMORE, President,
The Progress Nurseries,
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— QUEENS OF — MOORE'S STRAIN

OF ITALIANS PRODUCE
WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardness, gentleness, etc. I am now filling orders by return mail. Untested queens \$1.25; 6, \$6.50; 12, \$12. Select Untested, \$1.50; 6, \$8.00; 12, \$15. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Queen Breeder
Route 1, MORGAN, KENTUCKY.

LATE QUEENS

THREE-BANDED GOLDENS

Owing to the great demand for our queens with prospects of fine weather, we will continue to rear queens till late in October, and offer our fine strain of honey-gatherers till November 1st or later. If you have a queenless colony or old queen of no worth, October is your last chance this season to replace her. For quick service send us your order. Our ad will not appear again till early next season.

Quality Queens. October Prices.

Untested, 1 to 12.....\$0.85 each
Sel. Untested, 1 to 12..... 1.15 each
Sel. Tested 2.00 each

Wings clipped free on request. Entire satisfaction and safe arrival guaranteed in U. S. and Canada.

OHIO VALLEY BEE COMPANY

CATLETSBURG, KY.

ACHORD'S THREE-BANDED ITALIAN

QUEENS

We can supply you up to Oct. 20th. Shipment by return mail.

Untested\$0.75 each
Sel. Untested.....\$1.00 each

No disease. No honey used in shipping cages. Satisfaction guaranteed.

W. D. ACHORD

FITZPATRICK - - ALABAMA.

HONEY

We just received several carloads of beautiful Honey. Roadside beekeepers and those supplying a family trade will do well to take advantage of these bargain prices:

In 60-lb. Tins—White Orange, 13c lb.; White Sage, 12c lb. Extra L. A. Sage, 10½c lb.

GLASS AND TIN HONEY CONTAINERS.

2½-lb. cans, crates of 100.....\$4.50
5-lb. pails (with handles) crates of 100.. 7.00
10-lb. pails (with handles), crates of 50. 5.25
60-lb. tins, 2 per case, new \$1.20 case; used 25c

WHITE FLINT GLASS, WITH GOLD LACQUERED WAX LINED CAPS.

8-oz. honey capac., \$1.50 per carton of 3 doz.
16-oz. honey capac., \$1.20 per carton of 2 doz.
Qt. 3-lb. honey capac., 90c per carton of 1 doz.

HOFFMAN & HAUCK, INC.

Woodhaven, New York

Queens - Golden - Queens

Have you secured all you need? I have them as fine as you can secure anywhere at a reasonable price. Untested, \$1.00; six, \$5.00; 12, \$10. If they don't give you satisfaction and you write to me, I will make it satisfactory to you.

E. A. SIMMONS, GREENVILLE, ALA.

INDIANOLA APIARY offers Italian Bees and Queens for following prices: Untested Queens, \$1.00 each; Tested Queens, \$1.50 each. Bees, per lb., \$2.00. Nucleus, \$2.00 per frame. No disease. Bees inspected.

J. W. SHERMAN,
Valdosta, Georgia.

PATENTS --- TRADEMARKS

I offer prompt, personal and expert professional service. 10 years' experience. Write for terms. **LESTER SARGENT**, Patent Attorney, 524 Tenth St., N. W., Washington, D. C.

PATENTS

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CHAS. J. WILLIAMSON,
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MODERN APIARY FOR SALE.

BEE SUPPLIES

Am moving to California, and wish to dispose of my entire apiary at once. All supplies housed in new honey-shop of 2 stories. Power special 4-basket extractor, pump, storage tank, etc., all new. Lewis Beeware hives and supers on hand now enough to run 200 swarms with drawn combs. Forty swarms in yards now. Call or write and investigate. NO DISEASE.

A. E. BANKS,
Pres. Clinton Co. Beekeepers' Assn., Delmar, Iowa.

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FACTORY DIRECT



"Saved 24c a Rod," writes William Henry, Ripley, O. You, too, can save by buying direct at Lowest Factory Prices. WE PAY THE FREIGHT. Write today for Free 100-page Catalog of Farm, Poultry and Lawn Fence, Gates, Posts and Barbed Wire.
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MASON BEE SUPPLY COMPANY, Mechanic Falls, Maine.

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Eight mails daily—Two lines of railway.

If you have not received 1922 catalog send name at once.


NEWMAN'S QUEENS

Originated from the world-famous Moore strain of Italians. Absolutely first quality and fully guaranteed, no disease. Satisfaction and safe arrival.

Untested: 1, \$1.25; 6, \$6.00; 12, \$11.00.
Sel. Unt.: 1, \$1.75; 6, \$8.00; 12, \$15.00.

Circular free.

A. H. NEWMAN, Queen-Breeder.
Morgan, Kentucky.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

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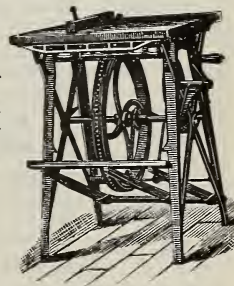
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This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

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MARKETS (Continued from page 625).

Following is a part of the tabulated figures on the honey crop, condition of the colonies and condition of the honey plants for the United States, based on reports collected by the U. S. Department of Agriculture and published in "Weather, Crops and Markets," issued by the Department. The figures showing the condition of the colonies and the honey plants for the various states are omitted here for lack of room. For the United States the condition of the colonies on Sept. 1 compared with normal was 95.1% as compared with 90.9% for 1921 and 91.2% for a five-year average. The condition of the fall honey plants Sept. 1, as compared with normal, was 76.2%, as compared with 77% in 1921 and 78.4% for a five-year average.

This table should be compared with that on page 533 August issue.

State.	Av. yield to Sept. 1 of surplus honey per colony (spring count)		Per cent of total surplus honey used by Sept. 1	
	1922	1921	1920	Per cent.
	Lbs.	Lbs.	Lbs.	
Maine	30	35	35	82
New Hampshire ..	32	34	36	90
Vermont	45	53	46	86
Massachusetts ..	31	36	36	77
Rhode Island ..	50	0	42	97
Connecticut ..	35	39	42	85
New York	51	60	57	89
New Jersey	33	38	39	89
Pennsylvania ..	41	40	46	82
Delaware	20	0	22	85
Maryland	30	27	50	93
Virginia	30	17	38	90
West Virginia ..	28	32	33	89
North Carolina ..	24	12	30	90
South Carolina ..	19	14	26	80
Georgia	27	29	29	86
Florida	55	36	55	94
Ohio	45	70	41	90
Indiana	53	57	35	80
Illinois	65	35	38	77
Michigan	56	65	49	91
Wisconsin	65	37	52	94
Minnesota	54	54	56	86
Iowa	70	40	57	90
Missouri	60	37	34	79
North Dakota ..	..	..	44	99
South Dakota ..	85	74	69	92
Nebraska	58	55	46	92
Kansas	45	43	29	87
Kentucky	40	43	32	80
Tennessee	15	23	26	84
Alabama	30	28	33	91
Mississippi	30	36	30	90
Louisiana	45	57	36	95
Texas	22	50	37	85
Oklahoma	40	28	32	86
Arkansas	35	30	24	84
Montana	60	70	85	91
Wyoming	65	80	89	88
Colorado	44.5	46	51	93
New Mexico	65	45	48	82
Arizona	42	46	62	94
Utah	50	60	78	93
Nevada	47	85	60	..
Idaho	65	80	60	97
Washington	75	50	53	92
Oregon	80	55	50	99.5
California	74	32	58	94
United States ..	50.0	40.5	42.7	87.1

Special Foreign Quotation.

LIVERPOOL.—The market for honey has been dull during the past month. The value of extracted honey in American currency is about 9 cents a pound. The market for beeswax is also slow, the price at today's rate of exchange being about 31c pound. Taylor & Co.

Liverpool, England, Sept. 6.

The A. I. Root Company's Quotation.

Since our last quotation we have paid the following prices in carlots f. o. b. shipping points: Water white extracted white clover, from local producers, with low freight rate, 10½ per lb.; Idaho white clover with trace of sweet clover or alfalfa, 8½c; western sweet clover and alfalfa, 8c; white sweet clover or alfalfa comb honey, fancy, \$3.75 per case; No. 1, \$3.50; and No. 2, \$3.25. These comb-honey quotations are on a basis of \$4.50 per case for fancy laid down in Medina; \$4.25 for No. 1, and \$4.00 for No. 2. We have just at present sufficient stocks for our needs.

Talks to Beginners.—Continued from page 665.

the packing. Finely crushed forest leaves, dry sawdust, fine planer shavings, wheat chaff or clover chaff can be used for packing the space between the hive and the outer box. The entrance should be reduced during cold weather to about ⅜ by 1½ or 2 inches, as described in another article in this issue. The bees can also be packed for winter in tarred paper illustrated on pages 644 and 645 in this issue.

All uniting, feeding and winter packing should be done during October, especially in the North, for these cannot well be done next month.

Beginners often ask if it would not be well to carry their bees into a shed during the winter. This should not be done. The bees will be better off out in the open where they can have the benefit of the winter sunshine than if placed in an open shed. Neither is it advisable to place loose material, such as fodder, about the hive, which would permit the wind to blow through but cut off the sunshine. Protection of this kind would be somewhat like placing the blankets on the roof, expecting them to keep one warm in bed. The protection should be placed immediately around the hive where it will do the most good, and the hive should be located if possible where the sun can shine on it, in order that the benefits of the winter sun may be secured.

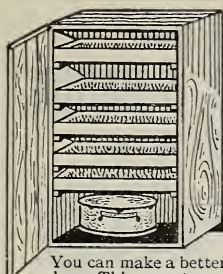
In the extreme northern part of the United States and in some parts of Canada many bees are wintered in cellars. Those who live in the extreme north and have a badly exposed location for the apiary may do well to put their colonies into the cellar next month and leave them there until the latter part of March or the first of April; but, if a protected location can be had, beginners will usually have better results by wintering their bees outside in well-protected hives.

BOOKS AND BULLETINS.

C. P. Dadant has revised and largely rewritten Langstroth on the Honeybee, thus bringing this great classic down to date. The new edition contains 438 pages and many new illustrations. The book is published by the American Bee Journal, Hamilton, Ill.

FOR SALE.—Safety Comb honey cartons for sections, size 4¼x4¼x1½; 4¼x4¼x1½; 4x5x1½; 4x5x1½; 3½x5x1½; 4¼x4¼x1½; 4¼x4¼x1½; 4¼x4¼x1½; for 50 cents per hundred, so long as present stock last. Sections equipped with these safety cartons will fit in the regular 24-pound shipping cases and insure safe shipment of honey. They are appropriately printed on all four sides. Send for sample.

THE A. I. ROOT COMPANY, Medina, Ohio.



**Oat
Sprouter
\$2.49**

You can make a better sprouter than you can buy. This sprouter was made in one evening by a 14 year old boy with a saw and hammer. The cost, with heater, was \$2.49. Thousands in use. All say it is the best and handiest made.

Make Layers Out of Loafers

To make hens lay their best, in winter, growing green food, rich in vitamins, must be fed. Sprouted oats are best. The Putnam Home Made Sprouter yields the best and sweetest sprouts and with the least work. I will send, free, plans for making this sprouter with description of Little Putnam Stove to heat it. Also instructions for use of stove to keep fowls' drinking water unfrozen. Stove holds three pints of oil. Burns a month without trimming or filling. Patented burner. Nothing like it. Ask your dealer, or send me his name and \$2.00 and get one by return mail, postpaid. Try it. If not satisfied, return in 10 days and I'll refund \$2.00 and postage. I run all risks.

I. PUTNAM Route 1060-0 Elmira, N. Y.



**\$2.00 Post
Paid**

Burns a Month Without Attention



RAISE GUINEA PIGS

for us. We buy all you raise. Big profits—large demand—easily raised. Pay better than poultry or rabbits. Particulars and booklet how to raise FREE. CAVIES DISTRIBUTING CO., 3145 Grand Ave., Kansas City, Mo.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

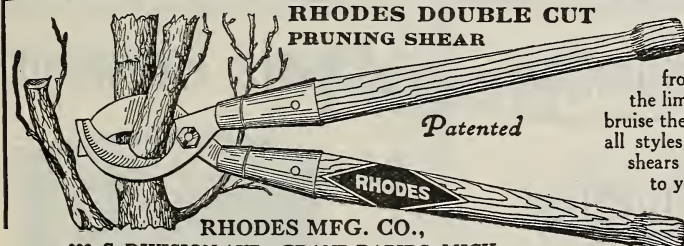
LEWIS 4-WAY BEE ESCAPES



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial metal. Price each 18c prepaid. Made by

G. B. LEWIS COMPANY, Watertown, Wis., U. S. A.
For Sale by All Dealers.

RHODES DOUBLE CUT PRUNING SHEAR



Patented

RHODES MFG. CO.,
328 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.



QUEENS Package Bees Nuclei QUEENS

For years we have been shipping thousands of pounds of bees all over U.S.A. and Canada. Now is the time to place your order for spring. Send for our free 1923 circular. We can save you money by ordering early.

The Very Best of Queens and Bees.
ITALIANS — CARNIOLANS — GOLDENS.

Nueces County Apiaries
Calallen, Texas



1923

1923

Nuclei & Bee Supplies

ROOT QUALITY

We carry a complete line of A. I. Root Co. supplies. Send for catalog. We are now booking orders for our nuclei for the spring of 1923. Note what the following prominent beekeepers say about our nuclei and business methods.

"In reference to your nuclei let me say I will have no hesitation in recommending you as to ability to put up bees for shipment or as to your business integrity.—R. F. Holtermann, Brantford, Canada.

"Installed the 25 nuclei today. They arrived in perfect condition. I am more than pleased with them, and will recommend you to anyone.—J. B. Alderson, 3432 N. Oak Park Ave., Chicago, Ill.

"Twenty-five nuclei arrived in excellent condition. This is something like buying bees.—Arthur F. Hodgson, Jarvis, Ont., Canada."

3-fr. Nuclei Italian Bees and Queen \$5.00 ea.
3-fr. Nuclei Black Bees and Italian

Queen 4.50 ea.

One extra pound of bees with each nucleus, and safe arrival, free from disease guaranteed. One-third down with order to guarantee acceptance.

A. R. IRISH

BOX 134.

SAVANNAH, GEORGIA

Big Reduction

--ON--

Bee Supplies

Shipping cases.....\$30.00 per 100

Slotted section-holders...\$3.00 per 100

Sections, 1 $\frac{1}{8}$, No. 1...\$10.00 per 1000

Job lots of frames, regular size.....\$3.00 per 100

Standard Hoffman frames, 9 $\frac{1}{8}$ deep\$4.50 per 100

Unspaced wedged top-bar frames, 9 $\frac{1}{8}$ deep.....\$2.75 per 100

Send for Catalog and Price List.

CHARLES MONDENG

146 Newton Avenue N. and
159 Cedar Lake Rd.
MINNEAPOLIS, MINN.

Requeen With

FOREHAND'S 3-BANDS

They Satisfy; Why?

Because they are guaranteed to be as good as money can buy. Not a cheap queen but a queen of the best at a cheap price. Every queen guaranteed to reach destination in first-class condition, to be purely mated and give perfect satisfaction or money back.

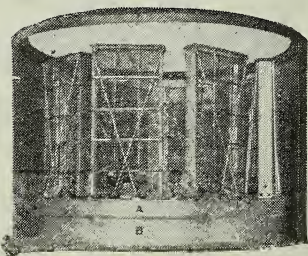
Orders filled by return mail.

Untested, 1 to 25, 90c each;
25 to 50, 80c each; 50 to 100,
75c each. Select Untested, \$1
each. Tested, \$1.75 each.

Better Queens for Less Money

N. FOREHAND, RAMER, ALA.

Lewis Extractors



Lewis-Markle Power Honey Extractor.
Tank cut away.

A—Pan over machinery. B—Bottom of tank.

Made in 4 and 8 frame sizes. Accommodates 2 sizes of baskets, power operation, machinery underneath, no vibration, tank and basket instantly removable for cleaning. A commercial success. Circular free. Address:

G. B. LEWIS COMPANY

Watertown, Wisconsin, U. S. A.

There's a Distributor Near You.

BEE CANDY Just what you want to use when you pack your bees this fall. This candy will save many colonies that are short of stores. Put up in large paper plates just right for your hive. Send for circular and price, also catalog of supplies.

H. H. JEPSON

182 Friend Street.

Boston 14, Mass.

QUEENS

Reliable Three-Banded Italians

Western Beekeepers, now is the time to re-queen those colonies. Head them with one of our vigorous young queens and be assured of having strong colonies in the spring when every bee counts. We can supply you promptly at the following prices:

Untested—1, \$1.00; 5, \$4.50; 10 to 50, 80c each; larger lots, 75c each. Tested—1, \$2.00; 10, \$17.00.

The Orange Apiaries, Porterville, Cal.

O. F. Darnell, Prop. M. S. Fortune, Queen-Breeder.

ROOT QUALITY SUPPLIES

BEES AND QUEENS.

Authorized Distributor for St. Louis district.
Send for Catalog.

O. G. RAWSON, 3208 Forest Place,
East St. Louis, Ill.

I. F. MILLER'S STRAIN

Italian Queen Bees

From my best SELECT BREEDERS; gentle, roll honey in, hardy, winter well, not inclined to swarm, three-banded, 28 years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.

1 Untested, \$1.25; 6, \$7.00; 12, \$12.00.
1 Sel. Unt., \$1.50; 6, \$8.00; 12, \$14.00.

I. F. MILLER,
Brookville, Pa., 183 Valley.

DON'T DELAY---GET OUR PRICES
WE SAVE YOU MONEY
“**falcon**”

SUPPLIES --- QUEENS --- FOUNDATION

W. T. FALCONER MFG. COMPANY

FALCONER (Near Jamestown), NEW YORK.

“Where the best beehives come from.”

BANKING BY MAIL AT

A.T. Spitzer
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E.R. Root
VICE PRES.

E.B. Spitzer
CASHIER

READY MONEY.

To be sure of having capital when opportunity calls, save and invest with prudence. Perfect security and 4% interest will reward you, if you open a Savings Account with this old, established bank. Deposits received BY MAIL.

4%

The SAVINGS DEPOSIT BANK CO.
THE HOME OF THE HONEY-BEE MEDINA, OHIO

QUESTION—

Mr. H. L. Jenkins, Hamburg, Iowa, sent us his order for 100 cases of two 5-gallon cans, and saved \$21.00.

Are We Saving You Money?

**THE A. I. ROOT COMPANY OF IOWA
COUNCIL BLUFFS, ICWA**

Your Last Chance

We can send you quick a choice untested Italian Queen at our reduced price, to fill your last need of the season for a queen. Order now and save your colony or replace those old queens before it is too late.

Queens, Nuclei and Packages for 1923

1 Untested, 75c; 10 or more, 60c each.

**THE STOVER APIARIES
MAYHEW, MISSISSIPPI**

NEW PRICES

On Friction Top Cans and Pails

	25	50	100	200	500	1000
2½-lb. cans	\$1.15	\$2.15	\$4.10	\$7.75	\$18.75	\$36.00
5 -lb. pails	1.90	3.50	6.50	12.00	28.25	55.50
10 -lb. pails	2.75	5.00	9.50	18.00	43.00	83.00

All packed in fibre containers. They keep neat and clean till you use them.
Prices F. O. B. cars Lansing and not from some distant shipping point.

Send in Your Order

1-Pound Round Jars

White glass and lacquered screw caps packed in re-shipping cases of 24 each. Priced as follows:

Each	\$1.30
10 Cases	12.00
50 Cases	57.50

F. O. B. cars, Lansing, Mich.

6-Ounce Tumblers

White glass and lacquered slip-on caps. Packed in re-shipping cases of 48 each. Priced as follows:

Per Case	\$ 1.45
10 Cases	14.00

F. O. B. cars, Lansing, Mich.

2-Pound Round Jars

White glass and lacquered screw caps. Packed in re-shipping cases of one doz. each. Priced as follows:

Per Case	\$ 1.20
10 Cases	11.50
25 Cases	27.50

F. O. B. cars, Lansing, Mich.

A Grade Tin Paste

Just what you want for attaching labels to tin and glass containers. It sticks. Prices as follows:

One Pint	25c
One Quart	45c
One Gallon	\$1.50

Postage extra.

Remember, IT STICKS.

Send in Your Order

M. H. HUNT & SON

510 North Cedar Street

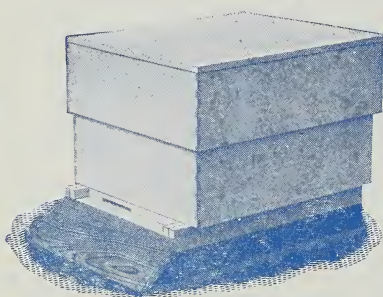
LANSING, MICHIGAN

Some Wintering Suggestions

It is time to be preparing the bees for winter. Every beekeeper knows that a young queen, plenty of young vigorous bees, plenty of good stores, and a location where the cold winter winds cannot sweep unbroken over the hives, are indispensable necessities for good wintering. There is another requirement for good wintering that a good many beekeepers unfortunately neglect—protection of the hive itself. Good beekeepers don't neglect this very important matter—they either use permanently packed double-walled hives, or they pack their hives from the outside in some sort of winter case.

THE BUCKEYE DOUBLE-WALLED HIVE.

Here is a hive, beautifully made, long tried, and proven fit for all the cold and storm of winter. Its first cost, to be sure, is greater than that of the single-walled hive, but it pays for itself within two or three seasons ordinarily, because: Bees winter in this hive with the very least loss; the hard labor of cellar-wintering or special packing is done away with; there is a saving of



The Buckeye Double-Walled Hive.

best cheap packing, we think. Any right-sized box, with exit from the hive entrance properly arranged, may be made to serve as a winter case. The rather expensive quadruple winter case is excellent and will pay, if the beekeeper has the money to buy it. We shall be glad to quote prices on quadruple winter cases, in small or large quantities—but they are not cheap. We will quote the very lowest figure possible, however, material and quantity considered.

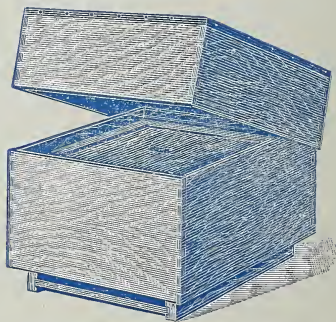
winter stores; strong colonies are assured for the beginning of the honey flow. Notwithstanding all these admitted advantages in favor of the permanently packed Buckeye Hive, we have known of beekeepers buying single-walled hives and providing winter-packing cases for them (necessitating all the labor of putting up and packing in the fall and taking down in the spring), at a larger expense than a Buckeye Hive for every colony would have cost them originally.

And right now it would pay many a beekeeper to make his bees safe and secure for next winter and all winters by transferring from old hives to the Buckeye. The beekeeper who does this has the safest, slickest, nicest-looking, easiest-to-handle apiary in the world. The small beekeeper especially should do this. The backlotter certainly should do it.

But—we do not advise any beekeeper with good single-walled hives to discard them. Pack them in some way for winter. Slater's felt tied about a single-walled hive, as advised and illustrated in Gleanings in Bee Culture for October, 1921, is the

BARGAIN PRICES FOR A WINTER CASE.

We have some winter cases for single-walled hives, both 8-frame and 10-frame, that virtually convert a standard single-walled hive into a Buckeye. The case, the same size as the outside wall of the Buckeye, fits over any standard 8 or 10 frame hive, leaving space for packing with shavings, chaff or leaves; and the regular Buckeye telescoping metal cover completes the outfit, which is very satisfactory. We have in stock 158 of the 8-frame, and 120 of the 10-frame of these dovetailed winter cases. While they last, we will sell the 8-frame in packages of 5, knocked down, for \$9.50; the 10-frame in packages of 5, knocked down, for \$10.00. First come, first served. They won't last long.



Dovetailed Winter Case with Metal Cover.

10,000 HAVE BEEN ASKED FOR.

The beekeepers of this country have already asked us for 10,000 copies of our little booklet, "How to Sell Honey." Perhaps you want one. If so, it's free and a postal card to us will bring it to you.

THE A. I. ROOT COMPANY
WEST SIDE STATION **MEDINA, OHIO**